

EXHIBIT 56

Rebecca Smith-Bindman, M.D.

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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW JERSEY

IN RE: JOHNSON & JOHNSON TALCUM
POWDER PRODUCTS MARKETING, SALES
PRACTICES, AND PRODUCTS LIABILITY
LITIGATION

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) MDL No.
) 2738 (FLW)(LHG)
)
)

VIDEOTAPED DEPOSITION OF
REBECCA SMITH-BINDMAN, M.D.
San Francisco, California
Friday, February 8, 2019
Volume II

Reported by:
MARY J. GOFF
CSR No. 13427

Rebecca Smith-Bindman, M.D.

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<p>1 2 3 4 5 Videotaped Deposition of REBECCA 6 SMITH-BINDMAN, M.D., Volume II, taken on behalf of 7 Johnson & Johnson, at Levin Simes Abrams LLP, 8 1700 Montgomery Street, Suite 250, San Francisco, 9 California 94111, beginning at 9:26 a.m. and ending 10 at 12:48 p.m., on February 8, 2019, before MARY J. 11 GOFF, California Certified Shorthand Reporter No. 12 13427. 13 14 15 16 17 18 19 20 21 22 23 24 25</p>	<p>1 APPEARANCES (continued): 2 3 For Defendant Johnson & Johnson 4 Tucker Ellis LLP 5 BY: MICHAEL C. ZELLERS 6 Attorney at Law 7 515 South Flower Street 8 42nd Floor 9 Los Angeles, California 90071 10 michael.zellers@tuckerellis.com 11 213-430-3301 12 13 14 For Defendant Johnson & Johnson 15 Skadden, Arps, Slate, Meagher & Flom, LLP. 16 BY: BENJAMIN HALPERIN 17 Attorney at Law 18 4 Times Square 19 New York, New York 10036 20 benjamin.halperin@skadden.com 21 212-735-2453 22 23 24 25</p>
Page 247	Page 249
<p>1 APPEARANCES: 2 3 For Plaintiffs 4 Beasley Allen Law Firm 5 BY: P. LEIGH O'DELL 6 MARGARET M. THOMPSON, MD, JD, MPAff 7 Attorney at Law 8 218 Commerce Street 9 Montgomery, Alabama 36103 10 leigh.odell@beasleyallen.com 11 334-269-2343 12 For Plaintiffs 13 Robinson Calcagnie, Inc. 14 BY: CYNTHIA L. GARBER 15 Attorney at Law 16 19 Corporate Plaza Drive 17 Newport Beach, California 92660 18 cgarber@robinsonfirm.com 19 For Plaintiffs 20 Wilentz, Goldman & Spitzer P.A. 21 Daniel R. Lapinski 22 Attorney at Law 23 90 Woodbridge Center Drive, 24 Suite 900 Box 10 25 Woodbridge, New Jersey 07095-0958</p>	<p>1 APPEARANCE (continued): 2 For Defendant Imerys 3 Dykema 4 BY: JANE BOCKUS 5 Attorney at Law 6 112 E. Pecan Street 7 Suite 1800 8 San Antonio, Texas 78205 9 jbockus@dykema.com 10 210-554-5549 11 12 For Defendant Imerys 13 Gordon & Rees LLP 14 BY: JENNIFER A. FOSTER 15 Attorney at Law 16 816 Congress Avenue 17 Suite 1510 18 Austin, Texas 78701 19 jfooster@gordonrees.com 20 512-391-0197 21 22 23 24 25</p>

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1	APPEARANCES (continued):	1	EXHIBITS CONTINUED: PAGE
2	For Defendant PCPC, Personal Care Products Council	2	Exhibit 34 Does Exposure to Asbestos Cause 324
3	Seyfarth Shaw, LLP		Ovarian Cancer article
4	BY: JAMES R. BILLINGS-KANG	3	
5	Attorney at Law	4	Exhibit 35 Occupational Exposure to Asbestos 327
6	975 F Street, NW		article
7	Washington, D.C. 20004	5	
8	jbillingskang@seyfarth.com	6	
9	202-828-5356	7	
10		8	
11		9	
12		10	
13		11	
14	For Defendants PTI Union, LLC and PTI Royston, LLC	12	
15	Tucker Ellis LLP	13	
16	BY: CAROLINE M. TINSLEY	14	
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21	caroline.tinsley@tuckerellis.com	19	
22		20	
23	Videographer:	21	
24	Andrew Graves	22	
25		23	
		24	
		25	

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1	INDEX	1	San Francisco, California
2	WITNESS EXAMINATION	2	February 8, 2019
3	REBECCA SMITH-BINDMAN, M.D.	3	9:26 a.m.
4	Volume II	4	
5		5	THE VIDEOGRAPHER: We are now on the
6	BY MR. ZELLERS 254, 372	6	record. My name is Andrew Graves. I'm a
7	BY MS. O'DELL 354	7	videographer for Golkow Litigation Services.
8	BY MR. BILLINGS-KANG 347	8	Today's date is February 8, 2019. The time is
9	BY MS. BOCKUS 331, 369	9	9:26 a.m.
10		10	This video deposition is being held at
11	NUMBER DESCRIPTION PAGE	11	1700 Montgomery Street, Suite 250, San Francisco,
12	Exhibit 28 6/1/17 Letter, Invoice 259	12	California, In the Matter of In Re: Johnson &
13		13	Johnson Talcum Powder Products Marketing, Sales
14	Exhibit 29 Bill, Invoice 147 261	14	Practices, and Products Liability Litigation, for
15		15	the United States District Court, District of
16		16	New Jersey.
17	Exhibit 30 Perineal Use of Talc and Risk 276	17	The deponent is Rebecca Smith-Bindman,
18	of Ovarian Cancer article	18	Ph.D., Volume II.
19		19	Would counsel please identify yourselves.
20	Exhibit 31 Influence of Aspirin and nonaspirin 297	20	MR. ZELLERS: Can we waive that since we
21	NSAID Use article	21	were all here yesterday?
22	Exhibit 32 Article, Talc 317	22	THE VIDEOGRAPHER: Okay. The court
23		23	reporter is Mary Goff, and she will now swear in the
24	Exhibit 33 Invoice, Tachibana, UCSF, 10/18 319	24	witness.
25		25	

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<p style="text-align: right;">Page 254</p> <p>1 REBECCA SMITH-BINDMAN, M.D., VOLUME II, 2 being first duly sworn or affirmed to testify to the 3 truth, the whole truth, and nothing but the truth, 4 was examined and testified as follows: 5 EXAMINATION BY COUNSEL FOR THE DEFENDANTS 6 BY MR. ZELLERS: 7 Q Good morning. 8 A Good morning. 9 Q Dr. Smith-Bindman, did you do anything to 10 prepare -- or further prepare for your deposition 11 since the time we concluded yesterday and this 12 morning? 13 A I did two things. I reviewed my report 14 again, and I called the biostatistician who worked 15 on my meta-analysis to review a few of the details. 16 Q You called Dr. Hall? 17 A I did. 18 Q When was the last time that you had talked 19 with Dr. Hall before yesterday? 20 A Speaking to her at the time of -- that she 21 did the analysis. And I -- I think there was an 22 e-mail or two over the last several weeks asking for 23 her CV or something like that, but not any 24 meaningful conversation. 25 Q Have you produced the e-mails -- the</p>	<p style="text-align: right;">Page 256</p> <p>1 manuscript. 2 I was quite surprised that they weren't 3 exactly the same. They were not meaningfully 4 different, but there was a very slight shift in 5 the ones that are in my report. 6 I mean, I asked Dr. Jane why that was the 7 case. And in fact, the numbers are calculated using 8 the standard errors in the confidence intervals and 9 the sample size which very slightly shifts it from 10 the reported numbers. 11 So you were correct when you said the 12 numbers are not exactly the same, and she explained 13 that that's why that's the case. 14 Q Are the numbers that were contained in 15 Figure -- Figures 2 and 3 in your report, estimates? 16 MS. O'DELL: Object to the form. 17 A The numbers are calculated. So I -- I 18 think by that, you mean estimates. 19 Q (BY MR. ZELLERS) Did you do the 20 calculations? 21 A No. She -- she did them. 22 Q Do we -- 23 THE COURT REPORTER: Can you raise your 24 voice for me, please? 25 A Yes, I can. I apologize.</p>
<p style="text-align: right;">Page 255</p> <p>1 recent e-mails with Dr. Hall? 2 A I -- I'm not sure if I produced the one 3 asking for her CV, but the -- and actually, I don't 4 remember when I asked her for that. I might have 5 presented -- 6 MS. O'DELL: I think that's part of the 7 production -- 8 Q (BY MR. ZELLERS) How -- 9 MS. O'DELL: -- but -- excuse me. 10 Q (BY MR. ZELLERS) How long did you speak 11 with Dr. Hall yesterday? 12 A About 15 -- 10-15 minutes. 13 Q Did you make any written notes? 14 A I -- I think I scribbled in my usual 15 scribble place. 16 Q What notes did you make from your 17 conversation with Dr. Hall yesterday after the first 18 session of your deposition? 19 A So -- so I did -- I did -- I did jot some 20 notes on my meta-analysis. But mostly I asked her 21 to clarify how she did the calculations of the 22 numbers that are shown in the figures. 23 I was struggling to understand why the 24 numbers and the figures were not exactly the same as 25 the ones that you showed me in the published</p>	<p style="text-align: right;">Page 257</p> <p>1 Q (BY MR. ZELLERS) Do we have her work 2 product as to the calculations that were made? 3 A In the documents that I shared, she 4 specified the -- the software that she used, the 5 program that she used. 6 In fact, the way of estimating it, it's 7 actually in my report as well. And so yes, it's 8 explained there, and it's in all of the documents 9 that I shared with you. 10 Q Her calculations are contained in the 11 documents that are shared; is that right? 12 A Yes. 13 Q The numbers that you got from the Terry 14 study, those came from the Terry publication; is 15 that right? 16 A Yes. 17 Q Any additional notes you made from your 18 discussion with Dr. Hall, other than what you have 19 generally told us about? 20 A No. Just that. 21 Q The notes that you added to your annotated 22 report from your discussion with Dr. Hall, which we 23 marked as Exhibit 17, those notes are on which page 24 or pages? 25 A Page 33 and 34.</p>

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<p style="text-align: right;">Page 258</p> <p>1 Q It looks like you made those notes in an 2 aqua pen is -- is that right, or -- 3 A Yes. 4 Q -- I -- 5 A Yes. 6 Q Okay. 7 A Yes, absolutely. 8 Q Any -- 9 A I would say teal, but... 10 Q Well, I think you're probably more correct 11 than I am. 12 Any other notes that you had from your 13 discussion with Dr. Hall? 14 A No. 15 Q Any other communications that you had with 16 Dr. Hall, other than your 10- or 15-minute phone 17 conversation yesterday afternoon or evening? 18 A No. 19 Q Did you communicate with Dr. Hall via 20 e-mail or any way other than just the phone call? 21 A No. 22 Q Did you communicate with anyone else 23 between the time we finished yesterday and this 24 morning about the subject matter that we're here to 25 talk about?</p>	<p style="text-align: right;">Page 260</p> <p>1 Q What do you -- well, I will take that as a 2 yes, that at least through November 13, 2018, that 3 Deposition Exhibit 28 are all of your invoices -- 4 A Yeah. 5 Q -- is that right? 6 A Yes. 7 Q Those invoices total approximately 8 160 hours. Does that sound right? 9 A 160? 10 Q 160. 11 A I'm -- I'm going to believe you. 12 Q Well, and anyone can go and check my math. 13 How many hours do you estimate that you 14 have spent up until today on this matter both doing 15 additional work, reviewing those additional studies 16 and materials we talked about yesterday, preparing 17 for the deposition, meeting with counsel for 18 Plaintiffs? 19 MS. O'DELL: Since the last invoice? 20 MR. ZELLERS: Since the last invoice is 21 what I had intended to ask. 22 MS. O'DELL: Yeah. Thank you. 23 A I -- I think approximately 25 hours. 24 Q (BY MR. ZELLERS) In addition, we were 25 provided with a two-page exhibit which are two</p>
<p style="text-align: right;">Page 259</p> <p>1 A No. 2 Q At the start of the session today, counsel 3 for Plaintiffs, Ms. O'Dell, provided me with copies 4 of your invoices. 5 I'm going to hand you what we have marked 6 as Exhibit 28. It is a five-page exhibit. 7 The first page is a cover letter. It 8 looks like an engagement or general engagement 9 letter from you to -- you say Mr. Carmen Scott. 10 Is it a Ms. Carmen Scott? 11 (Exhibit 28 was marked for identification 12 and is attached to the transcript.) 13 A It is. 14 Q All right. That was on June 1 of 2017. 15 The last invoice is November 13 of 2018; is that 16 right? 17 A I'm sorry. What was the question? Is 18 this -- 19 Q The question is: Are those all of our 20 invoices that you have generated thus far in the 21 talcum powder MDL litigation? 22 A I -- I think I mentioned that there are -- 23 I haven't submitted anything beyond this, but that 24 there are additional hours that I recorded after 25 this.</p>	<p style="text-align: right;">Page 261</p> <p>1 invoices from Jane Hall, which total around \$3,000. 2 (Exhibit 29 was marked for identification 3 and is attached to the transcript.) 4 Q (BY MR. ZELLERS) Can you look at 5 Exhibit 29 and verify for us that those are the 6 e-mails -- strike that -- that those are the 7 invoices for the work that was done by Dr. Hall? 8 A I -- I -- I believe so. 9 Q Are you aware of any additional invoices 10 beyond that? 11 A I'm not. 12 Q Do you have any invoices from your copy 13 editor, Ms. Tachibana? 14 A She sent me an invoice, which I forwarded 15 to counsel. 16 Q All right. How much was that invoice for? 17 A I think it was about \$1,500. 18 Q How much an hour does Ms. Tachibana 19 charge? 20 A I think it's about a hundred dollars an 21 hour. 22 Q Was that for all of the work that she did 23 with respect to your report? 24 A Yes. There was no other work other than 25 that 15 -- it might have been \$1,700.</p>

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<p>1 MS. O'DELL: Excuse me. I'm sorry, Mike. 2 I apologize for not copying that. We're going to 3 make a copy, and I will provide it to your 4 momentarily at -- 5 MR. ZELLERS: Very good. We'll mark it 6 before the conclusion of the deposition. Thank you. 7 Q (BY MR. ZELLERS) Do you have your report 8 in front of you? You can use your annotated 9 version, No. -- Exhibit 17. We also marked your 10 report as Exhibit 2. 11 A Yes. 12 Q Do you have that in front of you? 13 A I do. 14 Q Go to page 17, if you will, please. 15 MR. LAPINSKI: Counsel, you said page 17? 16 MR. ZELLERS: Yes, page 17. 17 A Yes. 18 Q (BY MR. ZELLERS) On page 17, you make a 19 number of general statements about the advantages 20 and disadvantages of case control and cohort 21 studies; is that right? 22 A Yes. 23 Q There are no citations there. Is this 24 based and those statements based on your general 25 knowledge?</p>	<p>1 paragraph, Mike? I have lost track. 2 MR. ZELLERS: I was asking about the 3 specific statement in the middle paragraph of 4 page 17 relating to cohort studies and the 5 limitation that they rarely focus on a single 6 narrowly defined question. 7 MS. O'DELL: Yes. Thank you. 8 Q (BY MR. ZELLERS) But my question now is -- 9 A Yes. 10 Q -- whether or not Dr. Smith-Bindman, as 11 you sit here, can cite any published literature that 12 states the cohort studies are unlikely to detect a 13 real association -- or unlikely to detect real 14 associations for this reason. 15 A I -- 16 MS. O'DELL: Excuse me. Are you 17 quoting -- when you say "unlikely to detect real 18 associations for this reason," is that reading -- 19 are you reading from her report or is that just -- 20 MR. ZELLERS: No. That's my question. 21 MS. O'DELL: -- okay. Sorry. 22 MR. ZELLERS: And if it's not very 23 articulate -- 24 A I -- I think cohort -- cohort studies are 25 able to detect real associations, if they ask about</p>
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<p>1 A Yes. This is based on Epi 101, sort of... 2 Q You make a statement in the middle 3 paragraph on page 17 where you talk about "cohort 4 studies." 5 And you state that they rarely focus on a 6 single narrowly defined question and that that's an 7 important limitation of cohort studies. 8 Do you see that? 9 A I do. 10 Q Can you cite to any other epidemiologists 11 who agree with you on that point? 12 A So it's very well known the cost of doing 13 a cohort study is often very large, and so the topic 14 that's often the central focus of the cohort study 15 is very, very well done. 16 It's the ancillary topics that often get 17 short shrift. And so that -- I -- I could probably 18 find this explained in any basic textbook. 19 And -- and I -- I apologize for not citing 20 it. This is sort of just very well-known general 21 concepts of study design. 22 Q Can you cite to any published literature 23 that states that cohort studies are unlikely to 24 detect real associations for this reason? 25 MS. O'DELL: Are you reading a particular</p>	<p>1 those associations. 2 If they don't ask about it, then it 3 can't -- then -- then it doesn't have an ability to 4 measure it. 5 So what I am saying here is that cohort 6 studies don't have the capacity to go in depth and 7 ask. 8 I think all of the cohort studies that I 9 reviewed for -- for this review discuss the lack of 10 detail in the cohort question, meaning that it's not 11 that the study design was the problem. It was that 12 they just didn't have the right predictor 13 information being assessed. 14 Q Despite this limitation -- or in your 15 view, limitation of cohort studies, you did include 16 the Gertig 2000 cohort study in your systematic 17 review; is that right? 18 A I did. I just want to clarify the answer. 19 Cohort studies are a very strong study design that I 20 like very much and that I have used and currently 21 I'm -- I'm using in study designs. 22 It's rather if the study design uses a 23 cohort, which is a good design, doesn't have enough 24 detail, because that's not the focus, that 25 doesn't -- it can't be used to answer other</p>

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<p>1 questions easily.</p> <p>2 So I think in general I like cohort</p> <p>3 designs very much, and I think it's a very powerful</p> <p>4 study design. But if you haven't asked the right</p> <p>5 questions, it's hard to the expand it.</p> <p>6 So I did -- I read all of the cohorts on</p> <p>7 this topic.</p> <p>8 Q And you concluded that the Gertig cohort</p> <p>9 study, you know, asked the right information or had</p> <p>10 sufficient information for you to include it both in</p> <p>11 your general systematic review and in your more</p> <p>12 focused systematic review which you set forth as</p> <p>13 Figures 2 and 3 in your report, correct?</p> <p>14 A That's correct. That -- those -- those</p> <p>15 were looking at regular use, and I thought the</p> <p>16 Gertig was the cohort that allowed me to understand</p> <p>17 regular use of perineal talc.</p> <p>18 Q Gertig was based on the Nurses' Health</p> <p>19 Study; is that right?</p> <p>20 A Yes.</p> <p>21 Q Gertig and the authors do recognize that</p> <p>22 the biologic evidence for the association of talc</p> <p>23 and ovarian cancer is incomplete, correct?</p> <p>24 MS. O'DELL: Object to the form.</p> <p>25 A I -- I don't have it in front of me, but</p>	<p>1 yet they didn't report it that way.</p> <p>2 They only reported on any exposure to talc</p> <p>3 powder products. And that is a very vague</p> <p>4 definition as opposed to the frequency of use.</p> <p>5 And for that reason, I couldn't tell in --</p> <p>6 in nearly the same detail as I could for the earlier</p> <p>7 study, the -- the exposure. They just chose not to</p> <p>8 present it that way.</p> <p>9 Q The Gates 2010 cohort study did include</p> <p>10 over a hundred thousand women; is that right?</p> <p>11 A The Gates?</p> <p>12 Q Yes.</p> <p>13 A It was large, but I need to check the</p> <p>14 actual numbers.</p> <p>15 Q Here. Let me hand it to --</p> <p>16 A I have it. I have it.</p> <p>17 Q Do you have it?</p> <p>18 A Yeah.</p> <p>19 Q Okay. And I am looking at page 47. And</p> <p>20 it's quoting the Nurses' Health Study as involving</p> <p>21 close to 109,000 --</p> <p>22 A I'm not sure.</p> <p>23 Q -- women?</p> <p>24 A I'm not sure. I'm looking at the -- the</p> <p>25 Gates -- are you asking about Gates or Gertig?</p>
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<p>1 it may be that they reported as of 2000, they didn't</p> <p>2 have evidence of the biologic mechanism. I --</p> <p>3 Q And I will ask you about biologic</p> <p>4 mechanism before we conclude here today.</p> <p>5 You did not, though -- well, let me</p> <p>6 withdraw that.</p> <p>7 There was a follow-up cohort study to</p> <p>8 Gertig 2000, and that was the Gates 2010 cohort</p> <p>9 study; is that right?</p> <p>10 A Yes.</p> <p>11 Q That had a longer follow-up than Gertig;</p> <p>12 is that right?</p> <p>13 A Yes.</p> <p>14 Q It was an analysis of the data collected</p> <p>15 in the Nurses' Health Study; is that right?</p> <p>16 MS. O'DELL: Object to the form.</p> <p>17 A It was analysis of some of the data</p> <p>18 collected in the -- in the Nurses' Health Study, but</p> <p>19 they did not report the variable in such a way that</p> <p>20 would allow you to understand or to quantify the</p> <p>21 exposure as opposed to the first cohort study which</p> <p>22 did.</p> <p>23 So the latter study, they -- they had the</p> <p>24 data, which is why I'm answering it this way. They</p> <p>25 clearly had it, because the data hadn't change, and</p>	<p>1 Q I'm asking about Gates 2010.</p> <p>2 A In mine it says \$221,000 woman with 924</p> <p>3 epithelial ovarian cancer.</p> <p>4 Am I looking in the wrong place?</p> <p>5 Q No. I -- and then if you look further, it</p> <p>6 talks about -- at least in the Nurses' Health Study,</p> <p>7 there being 108,870 women; is that right?</p> <p>8 A Yes.</p> <p>9 Q The women in the national health study,</p> <p>10 which was the basis for both the Gertig 2000 cohort</p> <p>11 study and Gates 2010 cohort study, those women were</p> <p>12 followed from 1976 to 2006, so for 30 years --</p> <p>13 A Yes.</p> <p>14 Q -- is that right?</p> <p>15 A Yes.</p> <p>16 Q And -- and after following these hundred</p> <p>17 thousand women -- or over hundred thousand women for</p> <p>18 three decades, the authors in Gates 2010 concluded</p> <p>19 that the data did not show a statistically</p> <p>20 significant relationship between talcum powder use</p> <p>21 and any type of epithelial ovarian cancer; is -- is</p> <p>22 that right?</p> <p>23 A The Gates authors concluded that there was</p> <p>24 no association between any talcum powder product</p> <p>25 use, and it was not significant in ovarian cancer,</p>

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<p>1 yes.</p> <p>2 Q Another short study that you did not</p> <p>3 include in your systematic review was the Houghton</p> <p>4 study; is that right?</p> <p>5 MS. O'DELL: Object to form.</p> <p>6 A Yes, that is true.</p> <p>7 Q (BY MR. ZELLERS) The Houghton study was</p> <p>8 based on -- or is also called the Women's Health</p> <p>9 Initiative Study; is that right?</p> <p>10 A Yes, it is.</p> <p>11 Q That involved 61,000 women; is that right?</p> <p>12 A That is correct.</p> <p>13 Q Houghton 2014 did not find a statistically</p> <p>14 significant relationship between perineal talc use</p> <p>15 and ovarian cancer among women who had ever used</p> <p>16 talc; is that right?</p> <p>17 A That is what they concluded.</p> <p>18 Q Or among women who had fewer than nine</p> <p>19 years of perineal talc use, correct?</p> <p>20 A Correct.</p> <p>21 Q Or among women who had more than 10 years</p> <p>22 of perineal talc use, correct?</p> <p>23 A Can you say that last part?</p> <p>24 Q Sure.</p> <p>25 A Sorry.</p>	<p>1 using it on a -- on a frequent basis, so I think the</p> <p>2 duration is very different measure.</p> <p>3 Q We talked yesterday about your definition</p> <p>4 of "regular use," and you pointed me to your report</p> <p>5 where you give an extensive discussion of that.</p> <p>6 Do you remember?</p> <p>7 A I do.</p> <p>8 Q Did -- your definition of "regular use,"</p> <p>9 was that every psychometrically tested to</p> <p>10 demonstrate any validity or reliability?</p> <p>11 MS. O'DELL: Object to the form.</p> <p>12 A Of -- are you asking about the reliability</p> <p>13 of the way we defined it --</p> <p>14 Q (BY MR. ZELLERS) Yes.</p> <p>15 A -- or about the concept?</p> <p>16 Q No. About the way you defined it.</p> <p>17 A I believe we explained in the report that</p> <p>18 we tried to approximate regular use, frequency use</p> <p>19 by being at least three times a week and as close to</p> <p>20 daily as possible.</p> <p>21 But in terms of -- if that is -- I -- I'm</p> <p>22 not -- we have not validated that in different</p> <p>23 studies or --</p> <p>24 Q That's something that you came up with; is</p> <p>25 that right?</p>
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<p>1 Q Houghton 2014, that cohort study --</p> <p>2 A Okay. No. I -- yes, that is correct.</p> <p>3 Q And also, they did not find a</p> <p>4 statistically significant relationship between</p> <p>5 perineal talc use -- strike that.</p> <p>6 They also did not find a statistically</p> <p>7 significant relationship between the use of talcum</p> <p>8 powder on sanitary napkins or diaphragms on -- and</p> <p>9 ovarian cancer; is that right?</p> <p>10 A That's correct.</p> <p>11 Q Houghton does report on duration of use at</p> <p>12 least more than 10 years of use; is that right?</p> <p>13 A Yes.</p> <p>14 Q But would you consider women who use</p> <p>15 talcum powder for more than 10 years to be frequent</p> <p>16 talc users?</p> <p>17 MS. O'DELL: Object to the form.</p> <p>18 A So you're asking if duration of use can be</p> <p>19 equated with frequency of use, and -- and I would</p> <p>20 very strongly disagree that those are equivalent.</p> <p>21 And that is the primary reason that I</p> <p>22 discount the results of the Gonzalez and Houghton</p> <p>23 and Gates studies.</p> <p>24 Because frequency of use, meaning to use</p> <p>25 it once a month or once a year, is not the same as</p>	<p>1 A Yeah.</p> <p>2 MS. O'DELL: Object to the form.</p> <p>3 A Yes, it is.</p> <p>4 Q (BY MR. ZELLERS) Gonzalez. You criticize</p> <p>5 Gonzalez in your report for combining various types</p> <p>6 of use. Do you recall that generally? So that's</p> <p>7 page 21 where --</p> <p>8 A No. I'm -- I'm on my report. My -- my</p> <p>9 hesitation is it's not so much that I'm criticizing</p> <p>10 the study. It's rather it doesn't contribute to</p> <p>11 answering the question that I was asking, which was:</p> <p>12 Does regular perineal talc exposure increase the</p> <p>13 risk?</p> <p>14 It doesn't mean that the questions they</p> <p>15 have asked are not interesting questions. They were</p> <p>16 just not the ones I was focusing on.</p> <p>17 Q Why would combining various types of use,</p> <p>18 bias the results in favor of not detecting an</p> <p>19 association?</p> <p>20 I guess from your statement it -- it may</p> <p>21 well not bias the results; is that right? It just</p> <p>22 was just a different question --</p> <p>23 A It's just a different question.</p> <p>24 Q -- than what --</p> <p>25 A I --</p>

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<p style="text-align: right;">Page 274</p> <p>1 Q -- you were looking at?</p> <p>2 A -- I believe that you want to have as</p> <p>3 narrow a definition, in my belief, of meta-analysis</p> <p>4 as possible to understand when you're pooling</p> <p>5 results, make sure -- something you said -- you're</p> <p>6 combining apples to apples.</p> <p>7 And I think one would expect that any</p> <p>8 potential -- potential exposure to talcum powder</p> <p>9 would matter what skin or surface or cell line or</p> <p>10 tissue you're putting against, and you wouldn't</p> <p>11 necessarily expect the same result in a cervical</p> <p>12 exposure or a diaphragm exposure or a vaginal</p> <p>13 exposure.</p> <p>14 You -- you might have an association of</p> <p>15 those places. You might not. I just think it's a</p> <p>16 different question.</p> <p>17 Q All of the cohort studies were prospective</p> <p>18 as opposed to retrospective; is that right?</p> <p>19 A Yes.</p> <p>20 Q Prospective studies are not subject to</p> <p>21 recall bias like retrospective studies, correct?</p> <p>22 A Yes, that's true.</p> <p>23 Q They're also not subject to the same</p> <p>24 selection bias as retrospective studies, correct?</p> <p>25 MS. O'DELL: Object to the form.</p>	<p style="text-align: right;">Page 276</p> <p>1 absolutely that's a possibility.</p> <p>2 Q You also looked at both the hospital-based</p> <p>3 and the population-based case-control studies; is</p> <p>4 that right?</p> <p>5 A I did.</p> <p>6 Q None of the hospital-based case-control</p> <p>7 studies show a statistically significant association</p> <p>8 between talc use and ovarian cancer, correct?</p> <p>9 A I -- I'm not sure --</p> <p>10 Q Take a look at --</p> <p>11 A -- where you're getting that from.</p> <p>12 Q I will show you the Langseth paper from</p> <p>13 2008, which you cite and we talked about yesterday.</p> <p>14 Let's mark this as Exhibit 30.</p> <p>15 (Exhibit 30 was marked for identification</p> <p>16 and is attached to the transcript.)</p> <p>17 A I have it. I have it.</p> <p>18 Q (BY MR. ZELLERS) All right. Now -- and</p> <p>19 let me just -- I'll put it in the record there.</p> <p>20 MS. O'DELL: Thank you.</p> <p>21 Q (BY MR. ZELLERS) If you look at the</p> <p>22 Langseth paper, on the second page, Figure 1, they</p> <p>23 list out all of the population -- or at least a</p> <p>24 great number of the population-based and</p> <p>25 case-control studies and the hospital-based</p>
<p style="text-align: right;">Page 275</p> <p>1 A In general, case-control studies are often</p> <p>2 plagued with selection bias, but they don't have to</p> <p>3 be.</p> <p>4 Q (BY MR. ZELLERS) Well, recall bias can</p> <p>5 distort a scientific evaluation of whether an</p> <p>6 exposure is actually related to a disease, correct?</p> <p>7 A Yes.</p> <p>8 Q So for example, recall bias could distort</p> <p>9 results if women with ovarian cancer were more</p> <p>10 likely to remember their exposure to talc than women</p> <p>11 without ovarian cancer; is that right?</p> <p>12 A That is a theoretical risk.</p> <p>13 Q In fact, in your report on page 17, you</p> <p>14 acknowledge that the risk of bias is greater for</p> <p>15 case-control studies as opposed to cohort studies;</p> <p>16 is that right?</p> <p>17 A Yes.</p> <p>18 Q Recall bias could explain the fact that</p> <p>19 some retrospective case-control studies have found a</p> <p>20 statistically significant relationship between</p> <p>21 talcum powder and ovarian cancer, but the cohort</p> <p>22 studies have not, correct?</p> <p>23 A That is a theoretical risk. To do that</p> <p>24 you would need to have some knowledge in the</p> <p>25 population that influenced that recall bias, but</p>	<p style="text-align: right;">Page 277</p> <p>1 case-control studies; is that right?</p> <p>2 A Yes, they do.</p> <p>3 Q (BY MR. ZELLERS) At least among the</p> <p>4 hospital-based case-control studies that are</p> <p>5 identified by Langseth in Figure 1, it appears that</p> <p>6 there's six hospital-based case-control studies.</p> <p>7 None of those hospital-based case-control</p> <p>8 studies show a statistically significant</p> <p>9 association, correct?</p> <p>10 MS. O'DELL: Object to the form.</p> <p>11 A We discussed this yesterday. But if</p> <p>12 you're asking if the individual hospital-based</p> <p>13 studies overlap one, then they overlap one.</p> <p>14 Q (BY MR. ZELLERS) They do not overlap one?</p> <p>15 A The -- the hospital-based studies do</p> <p>16 overlap one.</p> <p>17 Q Okay. The population-based case-control</p> <p>18 studies, which are up above in our</p> <p>19 Langseth Figure 1, some of those -- if we look at</p> <p>20 the individual studies -- show statistical</p> <p>21 significance, and some of those do not; is that</p> <p>22 right?</p> <p>23 A I'm -- I'm hesitant to be as definitive</p> <p>24 about using the confidence interval that are</p> <p>25 presented here as being a reflection of statistical</p>

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<p style="text-align: right;">Page 278</p> <p>1 significance.</p> <p>2 All of them are shifted to the right. All</p> <p>3 of them have a positive association. And the</p> <p>4 confidence interval for some of them overlap one.</p> <p>5 But taken as a group, there's statistical</p> <p>6 significance for the entirety of the population --</p> <p>7 of the population of studies that he looked at.</p> <p>8 Q As we did discuss yesterday, if you look</p> <p>9 at the population-based studies individually, at</p> <p>10 least based upon what's reported by Langseth in his</p> <p>11 Figure 1, some demonstrate statistical significance</p> <p>12 and some do not; is that right?</p> <p>13 A I -- again, it's -- they're slightly --</p> <p>14 it's -- it's not the only -- the confidence interval</p> <p>15 overlapping one is sort of what I consider a</p> <p>16 quick-and-dirty way to answer statistical</p> <p>17 significance.</p> <p>18 It's not exactly that way. But some of</p> <p>19 them clearly suggest statistical significance. I</p> <p>20 think ten of them. And four of them suggest not</p> <p>21 statistical significance. So the individual</p> <p>22 studies. But it's a little more complicated than</p> <p>23 that.</p> <p>24 Q Would you agree that if a study does not</p> <p>25 show statistical significance, that it could mean</p>	<p style="text-align: right;">Page 280</p> <p>1 tell if things are different or the -- or</p> <p>2 indistinguishable, the confidence interval for the</p> <p>3 pooled odds ratio for the population-based studies</p> <p>4 goes from 1.29 to 1.52, so the truth is likely in</p> <p>5 that range, where the truth for the hospital-based</p> <p>6 studies is 0.92 to 1.63. They overlap.</p> <p>7 And so I would interpret that using this</p> <p>8 sort of quick approach is that there's not a</p> <p>9 statistical difference between the summary of the</p> <p>10 pooled odd ratio based on the type of populations</p> <p>11 that were recruited.</p> <p>12 Again, the point estimates are a little</p> <p>13 bit different for sure, 1.4 versus 1.12. But the</p> <p>14 confidence intervals overlap, suggesting that</p> <p>15 they're not -- they're not different.</p> <p>16 Q You are familiar with selection bias; is</p> <p>17 that right?</p> <p>18 A I am.</p> <p>19 Q Would you agree that the hospital-based</p> <p>20 case-control studies may be less susceptible to</p> <p>21 selection bias than population-based case-control</p> <p>22 studies?</p> <p>23 MS. O'DELL: Object to the form.</p> <p>24 A I -- I would not agree with that. In</p> <p>25 general, you think about hospital-based studies as</p>
<p style="text-align: right;">Page 279</p> <p>1 that no risk exists?</p> <p>2 A If --</p> <p>3 MS. O'DELL: Object to the form.</p> <p>4 A -- an individual study shows no</p> <p>5 statistical significance, it means -- with all</p> <p>6 research -- that the most likely truth is the point</p> <p>7 estimate, which is whatever that point estimate is,</p> <p>8 but that you could not exclude chance as one of the</p> <p>9 possible causes for the results.</p> <p>10 Q (BY MR. ZELLERS) If we looked just at the</p> <p>11 population-based case-control studies and the</p> <p>12 hospital-based case-control studies that are shown</p> <p>13 by Langseth in Figure 1, there is an inconsistency</p> <p>14 between the two in that each of the individual</p> <p>15 hospital-based case-control studies have confidence</p> <p>16 intervals which overlap one, and many of the</p> <p>17 population-based or at least some of the</p> <p>18 population-based studies do not, correct?</p> <p>19 A I -- I do not believe there is</p> <p>20 inconsistency between the pooled odds ratio for</p> <p>21 population-based studies, which has a confidence</p> <p>22 interval that overlaps the confidence intervals for</p> <p>23 the pooled odd ratio for the hospital-based studies.</p> <p>24 So using the approach that you are</p> <p>25 suggesting of using confidence intervals, the way to</p>	<p style="text-align: right;">Page 281</p> <p>1 being potentially a great deal more bias.</p> <p>2 Now, that -- with that caveat, it depends</p> <p>3 on how you found your cases and your controls.</p> <p>4 But in general, you want to find</p> <p>5 population-based cases and controls, I believe,</p> <p>6 rather than hospital-based. But it matters how they</p> <p>7 are recruited.</p> <p>8 Q Hospital-based control studies are</p> <p>9 comparing hospitalized patients to hospitalized</p> <p>10 patients; is that right?</p> <p>11 A I -- I -- in this case, yes, I think</p> <p>12 that's --</p> <p>13 Q And --</p> <p>14 A -- how they define it.</p> <p>15 Q -- in population based studies, you're</p> <p>16 more likely to be comparing ill people to healthy</p> <p>17 people; is that right?</p> <p>18 A Again, it -- it depends on how you're</p> <p>19 selecting. If you're selecting patients who are</p> <p>20 sick in the hospital and comparing that to healthy</p> <p>21 patients who are outpatient population based, that</p> <p>22 would be the kind of bias that you are describing.</p> <p>23 That would be the worst.</p> <p>24 But if you're, in fact, comparing</p> <p>25 relatively comparable population-based cases and</p>

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<p style="text-align: right;">Page 282</p> <p>1 controls, then I don't agree that hospital-based</p> <p>2 controls are -- are better.</p> <p>3 Q Penninkilampi. One of the studies that</p> <p>4 you talked to us about yesterday was Penninkilampi</p> <p>5 2018; is that right?</p> <p>6 A Yes.</p> <p>7 Q Penninkilampi 2018 did not include the</p> <p>8 Gates 2010 cohort study; is that right?</p> <p>9 A That's correct.</p> <p>10 Q Did you verify that the data that</p> <p>11 Penninkilampi reports is accurate?</p> <p>12 A I did not. Did I go back and validate</p> <p>13 their individual abstracted data?</p> <p>14 Q Yeah.</p> <p>15 A I did not.</p> <p>16 Q In determining that a study is of high</p> <p>17 quality, would it be important to you that the</p> <p>18 authors are accurately reporting the odds ratios and</p> <p>19 confidence intervals?</p> <p>20 A Data accuracy is important to me. And --</p> <p>21 and I would look towards the journal peer review</p> <p>22 process to have done that, yes.</p> <p>23 Q If -- if there were errors in reporting of</p> <p>24 the odds ratios or the confidence intervals, that</p> <p>25 could call into question the reliability of the</p>	<p style="text-align: right;">Page 284</p> <p>1 been established; is that right?</p> <p>2 A That is what they say.</p> <p>3 Q Meta-analyses or systematic analyses, that</p> <p>4 can combine the work of other published studies into</p> <p>5 one study; is that right?</p> <p>6 A Yes.</p> <p>7 Q If there are biases and confounding in the</p> <p>8 underlying studies, the meta-analysis or the</p> <p>9 systematic review or analysis will reflect the</p> <p>10 biases and confounding; is that right?</p> <p>11 MS. O'DELL: Object to the form.</p> <p>12 A Any biases in the papers will not go away</p> <p>13 by combining them. I'm not sure what you mean by</p> <p>14 "the confounding." If -- if a paper has an</p> <p>15 accounting for confounding?</p> <p>16 Q (BY MR. ZELLERS) Let me ask you another</p> <p>17 question. A proper meta-analysis or systematic</p> <p>18 review must analyze the sources of heterogeneity</p> <p>19 across the studies; is that right?</p> <p>20 A Yes.</p> <p>21 Q And a proper meta-analysis or systematic</p> <p>22 review must examine the methodology of each of the</p> <p>23 underlying studies, correct?</p> <p>24 A Yes.</p> <p>25 Q You have given some opinions -- or at</p>
<p style="text-align: right;">Page 283</p> <p>1 study; is that right?</p> <p>2 MS. O'DELL: Object to the form.</p> <p>3 A Yes, that's definitely possible.</p> <p>4 Q (BY MR. ZELLERS) Penninkilampi 2018, that</p> <p>5 study specifically states that a certain causal link</p> <p>6 between talc use and ovarian cancer has not been</p> <p>7 established, correct?</p> <p>8 MS. O'DELL: Object to the form.</p> <p>9 A I don't remember them concluding that.</p> <p>10 But if you tell me where --</p> <p>11 Q (BY MR. ZELLERS) Sure.</p> <p>12 A -- it is --</p> <p>13 Q Look at page 42, at the end of first</p> <p>14 paragraph.</p> <p>15 A Well, perineal talc use has not been shown</p> <p>16 to be safe. In a similar regard, a certain causal</p> <p>17 link between the use and ovarian cancer has not been</p> <p>18 established --</p> <p>19 Q And you --</p> <p>20 A -- is what --</p> <p>21 Q -- okay.</p> <p>22 A -- Penninkilampi says.</p> <p>23 Q And I think you omitted the word "talc."</p> <p>24 But their specific statement is, A certain causal</p> <p>25 link between talc use and ovarian cancer has not yet</p>	<p style="text-align: right;">Page 285</p> <p>1 least you state some opinions relating to the</p> <p>2 biological mechanisms of cancer; is that right?</p> <p>3 A Yes.</p> <p>4 Q The biological mechanisms of cancer are</p> <p>5 not your area of expertise; is that correct?</p> <p>6 MS. O'DELL: Object to the form.</p> <p>7 A I'm knowledgeable about the biological</p> <p>8 mechanism of cancer as a scientist, as a physician,</p> <p>9 as a cancer epidemiologist.</p> <p>10 Q (BY MR. ZELLERS) Would you agree that</p> <p>11 there are others who are more closely involved in</p> <p>12 the area of biologic plausibility as it relates to</p> <p>13 the perineal use of talcum powder and ovarian</p> <p>14 cancer?</p> <p>15 MS. O'DELL: Object to the form.</p> <p>16 A I believe there are others who have more</p> <p>17 expertise directly in that area than I do.</p> <p>18 Q (BY MR. ZELLERS) Your opinion is that</p> <p>19 talcum powder travels from the perineal region to</p> <p>20 the ovaries through the women's reproductive tract;</p> <p>21 is that right?</p> <p>22 A Yes.</p> <p>23 Q If talcum powder can make this migration,</p> <p>24 can other substances make the same migration?</p> <p>25 A Yes.</p>

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<p>1 Q Sand from the beach?</p> <p>2 A I don't know if there's evidence of sand</p> <p>3 from the beach.</p> <p>4 Q Toilet paper particles?</p> <p>5 A I -- I -- I do not know if there's</p> <p>6 evidence of that.</p> <p>7 Q There are no human studies that</p> <p>8 demonstrate the migration of any particulate matter</p> <p>9 from outside the peri -- peritoneum to the ovaries,</p> <p>10 correct?</p> <p>11 MS. O'DELL: Object to the form.</p> <p>12 A When you say "demonstrate," do you mean</p> <p>13 active demonstration or a suggestion that it has</p> <p>14 gone that route?</p> <p>15 Q (BY MR. ZELLERS) Active -- active</p> <p>16 demonstration.</p> <p>17 A So there are no studies that I know of</p> <p>18 that have taken talcum powder and then documented</p> <p>19 its movement through -- to the ovaries.</p> <p>20 Q Or any particulate from outside the</p> <p>21 perineum to the ovaries, correct?</p> <p>22 MS. O'DELL: Object to the form.</p> <p>23 A I -- I don't know of any sort of active</p> <p>24 studies that have watched it moved. It's rather the</p> <p>25 studies have found the particulate matter at its</p>	<p>1 are a lot of other factors such as sphincters or the</p> <p>2 type of mucosa that it is or mucous barriers that</p> <p>3 might have a very strong relationship to the</p> <p>4 concentration of talc.</p> <p>5 So the rectum and the bladder have</p> <p>6 sphincters, and the mucosa and the vagina and the</p> <p>7 bladder and rectum are very different than the</p> <p>8 mucosa of the ovary. The endometrium has different</p> <p>9 tissue.</p> <p>10 So I agree with you that you would expect</p> <p>11 proximity would be one factor that might affect</p> <p>12 concentration. But the characteristics of the</p> <p>13 tissue, the barriers, the physical or mucosal could</p> <p>14 be expected to have a much bigger impact.</p> <p>15 Q No studies that you're aware of show</p> <p>16 inflammation as a result of genital talc use in the</p> <p>17 rectal, vulvar, vaginal, cervical, and uterine</p> <p>18 tissues; is that right?</p> <p>19 A I do not know of those studies.</p> <p>20 Q And no studies show a link between</p> <p>21 external genital talc use and rectal, vulvar,</p> <p>22 vaginal, cervical, or uterine cancer; is that right?</p> <p>23 MS. O'DELL: Object to the form.</p> <p>24 A That is correct.</p> <p>25 Q (BY MR. ZELLERS) You have not done an</p>
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<p>1 destination and then have supposed it had to travel</p> <p>2 there in some way.</p> <p>3 Q (BY MR. ZELLERS) None of the studies that</p> <p>4 you cite in your report actually looked at whether</p> <p>5 talcum powder can migrate from perineal application</p> <p>6 through the fallopian tubes to the ovaries, correct?</p> <p>7 A Correct.</p> <p>8 MS. O'DELL: Object to the form.</p> <p>9 Q (BY MR. ZELLERS) You also cannot cite any</p> <p>10 article that shows granulomas, fibrosis, or</p> <p>11 adhesions anywhere up the reproductive tract of a</p> <p>12 women as result of her external genital talc</p> <p>13 application; is -- is that right?</p> <p>14 A Yes.</p> <p>15 Q If talcum powder migrates from the</p> <p>16 perineal region to the ovaries, shouldn't exposure</p> <p>17 to talc be far greater in concentration in the</p> <p>18 rectal, vulvar, vaginal, cervical, and uterine</p> <p>19 tissues which are closer to the area of initial</p> <p>20 exposure?</p> <p>21 MS. O'DELL: Object to the form.</p> <p>22 A I think that assumes that proximity and</p> <p>23 concentration, which you would expect which would</p> <p>24 fall off with more distance, is the only factor that</p> <p>25 would determine concentrations when, in fact, there</p>	<p>1 expert review of the inflammation evidence yourself;</p> <p>2 is that fair?</p> <p>3 MS. O'DELL: Object to the form.</p> <p>4 A I -- I have done a lot of reading of the</p> <p>5 inflammation literature. I'm not sure how I would</p> <p>6 define it as an expert or not an expert -- expert</p> <p>7 review.</p> <p>8 Q (BY MR. ZELLERS) You do know that not all</p> <p>9 inflammatory conditions lead to cancer, correct?</p> <p>10 A There's a lot of literature about certain</p> <p>11 inflammation that causes chronic -- in particular a</p> <p>12 lot of different kind of cancers, more publications</p> <p>13 about acute inflammation that does not lead to</p> <p>14 cancer.</p> <p>15 But yes, there are both cancers that are</p> <p>16 very susceptible to inflammation or caused by it and</p> <p>17 some that are not.</p> <p>18 Q Chronic inflammation. There are many</p> <p>19 chronic inflammatory conditions that do not lead to</p> <p>20 cancer; is that right?</p> <p>21 A Yes.</p> <p>22 Q Do you agree that an agent can be a</p> <p>23 carcinogenic for one type of cancer, but not for</p> <p>24 others?</p> <p>25 A Yes.</p>

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<p>1 Q Rheumatoid arthritis, that is a chronic 2 inflammation condition, but it does not increase the 3 risk of my ovarian cancer, correct? 4 A Correct. 5 Q The same with psoriasis; is that right? 6 A Not that I know of. 7 Q Page 41 of your report, you conclude that, 8 Regular exposure to talcum powder products causes 9 ovarian cancer in some women. 10 Do you see that? 11 A I do. 12 Q Is there a certain amount of talcum powder 13 that a product must contain to cause inflammation? 14 MS. O'DELL: Object to the form. 15 A I -- I -- I do not know of evidence that 16 quantifies the amount of exposure that's necessary 17 that a published literature supports the amount 18 women use is an amount that leads to cancer, but 19 I -- I don't know if there's a minimum threshold 20 or... 21 Q (BY MR. ZELLERS) Do you consider 22 cornstarch to be a talcum powder product that causes 23 inflammation? 24 MS. O'DELL: Object to the form. 25 A Talcum powder -- cornstarch -- talcum</p>	<p>1 A In a few of the papers I reviewed -- not 2 very many of them, but a few of them had a small 3 proportion of women who were exposed to cornstarch 4 rather than talc powder products. 5 I -- I think it -- they had negative 6 results, but they were small -- a small number of 7 women, so I wouldn't use that to prove that it's 8 safe. 9 But I don't know of any literature that 10 suggests cornstarch is carcinogenic. 11 Q Your opinion that talcum powder products 12 cause inflammation is not based on the determination 13 that there is a threshold amount of talcum powder 14 that will be required to be in the product before 15 you can conclude that the product will cause chronic 16 inflammation; is -- is that right? 17 MS. O'DELL: Object to the form. 18 A I -- I -- I think I would like to agree. 19 I'm just not sure exactly of -- what I am agreeing 20 to. So I -- I don't know any level -- 21 MS. O'DELL: That's always -- 22 A -- of -- 23 MS. O'DELL: -- a good sign you should -- 24 A -- I -- I can't -- 25 MS. O'DELL: -- be --</p>
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<p>1 powder causes inflammation. Cornstarch can also 2 cause inflammation. 3 I believe cornstarch tends to be an acute 4 inflammatory process rather than a chronic 5 inflammation process. But -- 6 Q (BY MR. ZELLERS) You -- 7 A -- I -- I wouldn't consider cornstarch to 8 be a talcum powder -- 9 Q Is -- 10 A -- product. 11 Q -- is there a study that you can point me 12 to that states that any inflammation from cornstarch 13 is acute and not chronic? 14 MS. O'DELL: Object to the form. 15 A There's a literature about cornstarch 16 leading to acute inflammation, for example, in the 17 surgical literature when it was on surgical gloves 18 or on physical exams which has led to its being 19 removed so -- so as to reproduce acute inflammatory 20 processes. 21 Q (BY MR. ZELLERS) My question to you is: 22 Are you aware of any literature that states that 23 cornstarch is not associated with a chronic 24 inflammatory condition? 25 MS. O'DELL: Object to the form.</p>	<p>1 A -- I can't tell exactly what the -- what 2 the question is. 3 I -- there -- I don't know -- I don't know 4 an amount of talcum powder that would make a product 5 safe. 6 Q (BY MR. ZELLERS) Do you believe that 7 cornstarch is a superior alternative to talc? 8 A I believe that talcum powder products will 9 increase women's risk of cancer, and I would avoid 10 using it as a woman or as a doctor counseling my 11 patients. 12 Q Well -- 13 A I don't have views that cornstarch is a 14 carcinogenic product. So in terms of any potential 15 risk-benefit relationship of cornstarch has the same 16 value in terms of absorbency and much fewer risk of 17 harm, then if that's the question, then I think 18 cornstarch is preferable. 19 Q There are no reports in the literature of 20 externally applied talc leading to inflammation, 21 granulomas, fibrosis, or adhesions anywhere along a 22 women's reproductive tract, correct? 23 MS. O'DELL: Objection, asked and 24 answered. 25 A Not that I know of.</p>

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<p style="text-align: right;">Page 294</p> <p>1 Q (BY MR. ZELLERS) On page 12 of your report 2 you state, The most widely accepted mechanism for 3 initiation, promotion, and progression of ovarian 4 cancer is tissue inflammation, leading to a series 5 of responses that result in cancer. 6 Do you see that statement? 7 A I do. 8 Q You do not cite any support in your report 9 for that proposition, correct? 10 MS. O'DELL: Object to the form. 11 A I -- I think my -- that first paragraph 12 was sort of an introduction to that section. So 13 then I go on to cite, I -- I think, the supporting 14 evidence within the next few paragraphs. 15 Q (BY MR. ZELLERS) You would agree that 16 research regarding whether chronic inflammation can 17 cause ovarian cancer is ongoing, correct? 18 A It's an active area of research. 19 Q Are you familiar with a paper published by 20 Melissa Merritt in 2008, entitled "Talcum Powder 21 Chronic Pelvic Inflammation and NSAIDS in Relation 22 to Risk of Epithelial Ovarian Cancer"? 23 A I am. 24 Q It's included in your reliance materials 25 on page 17; is that right?</p>	<p style="text-align: right;">Page 296</p> <p>1 inflammation; is that right? 2 A Yes, they do. 3 Q If inflammation is a mechanism for ovarian 4 cancer, you would expect women who use NSAIDS or 5 aspirin to have a lower risk of ovarian cancer, 6 correct? 7 MS. O'DELL: Object to the form. 8 A Other things being equal, you might expect 9 that if you could measure inflammation or influence 10 it by using NSAIDS, that that might be associated. 11 That is true. 12 Q (BY MR. ZELLERS) The literature, though, 13 is mixed in terms of whether or not the use of 14 NSAIDS or aspirin actually reduce the risk of 15 ovarian cancer; is that right, or the incidence of 16 -- 17 A So -- 18 Q -- ovarian cancer? 19 A -- I have reviewed those papers and would 20 agree with you that some seem to suggest one 21 direction, some others. I haven't quantified them 22 together or tried to summarize them. 23 But I would agree. There doesn't seem to 24 be a consistent message in that literature. 25 Q One of those papers is -- that's included</p>
<p style="text-align: right;">Page 295</p> <p>1 A Can you tell me the title again? Yeah. 2 Okay. 3 Q Sure. Do you have that or I can -- 4 A No. 5 Q -- mark it? 6 A No, I have it. 7 Q If you go to page 174 of the Merritt 8 paper -- and tell me when you're -- 9 A I'm there. 10 Q -- there -- at the bottom of the first 11 paragraph of the discussion, the authors conclude, 12 These results, in combination with previous studies, 13 suggest that chronic inflammation is unlikely to 14 play a major role in the development of ovarian 15 cancer. 16 Is that right? Did I read that correctly? 17 A Using the results that they had available 18 on the data in 2007, that is what Dr. Merritt 19 concluded. 20 Q You also discuss in your report -- well, 21 let me withdraw that. 22 You're familiar with NSAIDS, nonsteroidal 23 antiinflammatory agents; is that right -- 24 A Yes, I am. 25 Q -- and aspirin? Those medicines reduce</p>	<p style="text-align: right;">Page 297</p> <p>1 in your reliance list is the Verdoodt 2017 paper; is 2 that right? That's V E R D O O D T. 3 A I am going to have to defer to seeing 4 that. 5 Q Okay. Let me -- 6 A I believe -- 7 Q -- show you -- 8 A -- it's on my list. 9 Q -- I will mark that paper as Exhibit 31. 10 (Exhibit 31 was marked for identification 11 and is attached to the transcript.) 12 A Thank you. 13 Q (BY MR. ZELLERS) And turn, if you will, to 14 page 5 under "Discussion" on the first paragraph. 15 A And just to confirm, this is -- I -- I 16 have read this. This is a review article, right? 17 Q Yes. 18 A Okay. 19 Q So on page 5 under "Discussion," the first 20 sentence, the authors state, The sparse and 21 equivocal results for the association between NSAID 22 use and mortality among ovarian and endometrial 23 cancer patients preclude any firm conclusions at 24 this point. 25 Is that right?</p>

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<p style="text-align: right;">Page 298</p> <p>1 A That is what this author concludes. I'm 2 trying to see what references he used for that, but 3 that is what he concludes. 4 Q Okay. And this is an article that was 5 published in 2017, correct? 6 A Yes. 7 Q Yesterday counsel for plaintiffs indicated 8 that you have -- in addition to the materials in 9 your report -- reviewed a 2018 chapter by Saed and 10 the Harper and Saed 2019 abstract; is that right? 11 A I -- I reviewed several of his abstracts 12 and -- and a recent paper, yes. 13 Q Do you know that Dr. Saed is a paid expert 14 for the Plaintiffs in this litigation? 15 A I know he's a very well-respected 16 scientist that they have supported in his research. 17 Q Is that a yes? 18 MS. BOCKUS: I object. Nonresponsive. 19 MS. O'DELL: Mike, excuse me. 20 MR. ZELLERS: Sure. 21 MS. O'DELL: You said the 2019 abstract. 22 Did you mean the abstract or the manuscript, just to 23 make sure I'm following the conversation? 24 MR. ZELLERS: I -- I believe I mean the 25 abstract. But we mean whatever the doctor has in</p>	<p style="text-align: right;">Page 300</p> <p>1 Q Have you spoken with Dr. Saed? 2 A I have not. 3 Q Have you requested any information from 4 Dr. Saed? 5 A I have not. 6 Q The Saed study just looked at immortalized 7 cell lines; is that right? 8 A Yes, I believe that's how the cell lines 9 were -- 10 Q Are -- 11 A -- defined. 12 Q -- are you -- are you aware that Dr. Saed 13 testified that the cells were modified with a virus 14 to make them keep undergoing division in vitro? 15 A I -- I'm aware that that's what happens to 16 cell lines. I -- I don't believe I saw his 17 deposition to say that. 18 Q Are you aware that Dr. Saed testified that 19 the P53 gene was turned off in those cells? 20 A No, I'm not aware. 21 Q Are you aware based upon your reading that 22 the loss of the P53 protein contributes to 23 unrestrained cellular proliferation? 24 MS. O'DELL: Object to the form. 25 A I -- I believe that the reason you have</p>
<p style="text-align: right;">Page 299</p> <p>1 her file that we marked yesterday. 2 THE COURT REPORTER: Who objected down 3 there? 4 MS. BOCKUS: Jane Bockus. 5 MS. O'DELL: I think what she had in her 6 file was the manuscript. So I think that's what you 7 marked as an exhibit, but I don't want there to be 8 confusion. 9 Q (BY MR. ZELLERS) You have reviewed several 10 publications within the last year or two from 11 Dr. Saed -- 12 A Yes. 13 Q -- is that right? 14 A Yes, I have. 15 THE COURT REPORTER: Wait. 16 MR. ZELLERS: All right. Are you okay, 17 Ms. Court Reporter? 18 THE COURT REPORTER: Yes. I just have to 19 have you wait until the end of the question, please. 20 Q (BY MR. ZELLERS) Let me re-ask my -- 21 A Please. 22 Q -- question. Did you know that Dr. Saed 23 is a paid expert for the Plaintiffs in this 24 litigation? 25 A Yes, I do.</p>	<p style="text-align: right;">Page 301</p> <p>1 controls in experiment is to account for the 2 underlying expression in turnover cells so you can 3 compare something you do to the cell versus the 4 baseline in order to account for the baseline, 5 whatever it is, proliferation of the cell or 6 apoptosis levels or expression of oxidants or 7 antioxidants. 8 So I -- I -- the way you're asking the 9 question is -- is: Are you comparing this cell line 10 to living cells in context? 11 And I would agree with you that this cell 12 line is different than living cells in context. 13 But if you're asking if it's a valid 14 comparison to do the experiment in this cell line, 15 it is because you are doing an intervention to those 16 cells that has a control group. 17 And so this cell line has a different 18 behavior than a -- a living cell does, but provides 19 a comparison group. 20 Q (BY MR. ZELLERS) What methodology did you 21 use to apply Dr. Saed's results to normal cells in 22 actual organs? 23 A So -- 24 MS. O'DELL: Object to the form. 25 A -- in some of the work that I do around a</p>

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<p style="text-align: right;">Page 302</p> <p>1 different environmental carcinogen -- radiation, for 2 example -- we look at changes of expression, certain 3 enzymes in cells to radiation to understand what 4 that damage does in terms of expression of relevant 5 genes, cell proliferation, and things like that. 6 So I take his research to mean that I can 7 understand the changes to pro oxidants to 8 antioxidants to apoptosis to gene expression in the 9 cell. Not that I can come up with the exact 10 quantification in a patient that would correspond to 11 it, but rather, what mechanisms will be stimulated 12 by the talc. 13 So to answer your question, I -- it tells 14 me what parts of the cell are sensitive to it, but 15 not the quantity that might lead to that 16 sensitivity. 17 Q (BY MR. ZELLERS) Can you cite any data 18 showing that the concentrations of exposure used in 19 the Saed study are the same as would be encountered 20 with the use of cosmetic talc in the perineal 21 region? 22 A I cannot. That's what I was trying to 23 express. 24 Q Can you cite any data showing that the 25 level of concentration of exposure used in the Saed</p>	<p style="text-align: right;">Page 304</p> <p>1 develop enough mutations to develop into cancer. 2 But the greater the oxidative stress for 3 cancer like ovarian cancer, the greater the chance 4 of inducing cancer. 5 Q Can you cite me to any study that says 6 that? 7 MS. O'DELL: Object to the form. 8 A Any study that says that there's a dose 9 response related to the amount of stress and the 10 member -- numbers of cancers? 11 Q (BY MR. ZELLERS) That supports, yes, your 12 statement and your position. 13 A I -- the data that I am thinking of -- and 14 I'm not sure if it's quite the same as the question 15 that you're asking -- is the number of gene 16 mutations is higher in cancer cells than it is in 17 noncancer cells. So -- 18 THE COURT REPORTER: In noncancer? 19 A In non -- cancer cells have many more 20 genetic mutations than noncancer cells. 21 Both have generic mutations. And the 22 environment of having more oxidative stress is 23 associated with getting more mutations -- 24 Q (BY MR. ZELLERS) If -- if it's -- 25 A -- but --</p>
<p style="text-align: right;">Page 303</p> <p>1 study has ever occurred in women with perineal talc 2 use? 3 MS. O'DELL: Object to the form. 4 A I want to clarify my answer. I don't know 5 those data. 6 Q (BY MR. ZELLERS) Would you agree that 7 reactive oxygen species are a normal part of cell 8 physiology? 9 A Yes. 10 Q Do all substances that cause oxidative 11 stress also cause cancer? 12 A I think you care about the balance of 13 oxidative, pro oxidative, antioxidative levels. 14 That being said, I do not know that every 15 instance where you have more pro oxidative leads to 16 cancer. I know of some where it does. I don't know 17 if it always does. 18 Q Does the presence of oxidative stress in a 19 tissue indicate that cancer will develop in that 20 tissue? 21 A I think I mentioned this yesterday, that 22 there's a sense of a probability. So the 23 probability will likely increase. 24 But most cells, thankfully, will repair 25 and -- that damage, and so most cells will not</p>	<p style="text-align: right;">Page 305</p> <p>1 Q -- are you finished? 2 A -- I -- I am. 3 Q Okay. If -- if exposure to a substance 4 causes oxidative stress in certain tissue, does that 5 mean that the substance will cause oxidative stress 6 in all types of tissues? 7 A No. 8 Q Does the body have a protective mechanism 9 that can limit tissue damage from oxidative stress? 10 A Yes. 11 Q Are there any publications that you are 12 aware of that indicate that oxidative stress is 13 involved in the development of ovarian cancer? 14 A We discussed earlier that inflammation 15 increases oxidative stress such as pelvic 16 inflammatory disease leads to oxidative stress. 17 And pelvic inflammatory disease is 18 associated and leads to ovarian cancer. But I'm not 19 sure if that's answers the question that you are... 20 Q Well, if I had more time, we would discuss 21 that at greater length. You're familiar with the 22 term "confounding" is that right? 23 A I -- I -- Yes, I'm -- 24 Q All right. 25 A -- familiar with that term.</p>

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<p>1 Q Confounding is where the presence of</p> <p>2 another association confuses the relationship</p> <p>3 between the exposure and the disease being studied;</p> <p>4 is -- is that right?</p> <p>5 A Yes.</p> <p>6 Q Confounding can distort results in</p> <p>7 epidemiological studies; is that right?</p> <p>8 A Yes.</p> <p>9 Q Would you agree that residual confounding</p> <p>10 is possible in every observational study?</p> <p>11 A Yes.</p> <p>12 Q It's also -- strike that.</p> <p>13 It's possible that unmeasured confounders</p> <p>14 may be present in every observational study,</p> <p>15 correct?</p> <p>16 A Yes.</p> <p>17 Q It's impossible to say that all known and</p> <p>18 unknown confounding factors have been controlled for</p> <p>19 in any given study; is that right?</p> <p>20 A Yes.</p> <p>21 Q Would you agree that there are new factors</p> <p>22 that are being discussed that are possibly involved</p> <p>23 with ovarian cancer that are just being published in</p> <p>24 the literature such as a history of chlamydia</p> <p>25 infection and a history of weight gain during</p>	<p>1 is unavoidable in this type of summary. The large</p> <p>2 difference in general between adjusted and crude</p> <p>3 results emphasizes the importance of adjustments</p> <p>4 when estimating particular risk?</p> <p>5 THE COURT REPORTER: When estimating?</p> <p>6 MR. ZELLERS: Particular risk.</p> <p>7 A Are you asking what I meant by that?</p> <p>8 Q (BY MR. ZELLERS) Yes. What did you mean</p> <p>9 by that?</p> <p>10 A Okay. I -- I would say my sentence is not</p> <p>11 as clear as it should have been. What I mean -- and</p> <p>12 I'm not really sure why I pointed this out just for</p> <p>13 Berge -- it's really a general -- is that the</p> <p>14 studies they included, adjusted for different</p> <p>15 covariants.</p> <p>16 They didn't all adjust for the same</p> <p>17 covariates. So a variety of covariates, meaning</p> <p>18 they didn't all adjust for the exact same</p> <p>19 covariates.</p> <p>20 But this is unavoidable in this type of</p> <p>21 study. So I was just saying that some of the</p> <p>22 included studies adjusted for A, B and C; and others</p> <p>23 were adjusted for B, C, and D; and others D, E, and</p> <p>24 F.</p> <p>25 Q Huncharek, page 26. Do you see that</p>
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<p>1 adolescence?</p> <p>2 MS. O'DELL: Object to the form.</p> <p>3 A Chlamydia infection would be the most</p> <p>4 common infection of PID, and so that's something</p> <p>5 that I just mentioned. I'm not sure that that's</p> <p>6 such a new one.</p> <p>7 And weight gain during adolescence is</p> <p>8 something that's of interest across a range of</p> <p>9 cancers, like breast cancer. I don't know it</p> <p>10 personally around ovarian cancer, but...</p> <p>11 Q (BY MR. ZELLERS) Those factors that we</p> <p>12 just talked about generally have not been controlled</p> <p>13 for in any of the published talcum powder ovarian</p> <p>14 cancer studies; is that right?</p> <p>15 A I -- the PID, I -- I think, has it in a</p> <p>16 paper or two. And -- and the weight gain, I -- I</p> <p>17 don't -- I have never seen that one.</p> <p>18 Q We talked yesterday about the Berge study.</p> <p>19 Do you remember that?</p> <p>20 A I do.</p> <p>21 Q And you talk about Berge on page 25 of</p> <p>22 your report.</p> <p>23 What do you mean when you say, A second</p> <p>24 limitation of Berge is that the included studies</p> <p>25 adjusted for a variety of covariates, although this</p>	<p>1 reference where you talk about that study?</p> <p>2 A Yes.</p> <p>3 Q You say that the difference between a</p> <p>4 relative risk of 1.19 and 1.38 is small; is that</p> <p>5 right?</p> <p>6 MS. O'DELL: You're talking about 2007 or</p> <p>7 2003?</p> <p>8 Q (BY MR. ZELLERS) Whichever --</p> <p>9 A Which page?</p> <p>10 Q -- so page 26 --</p> <p>11 MS. O'DELL: They're both on the same</p> <p>12 page.</p> <p>13 Q (BY MR. ZELLERS) I think I'm looking at</p> <p>14 the one at the bottom.</p> <p>15 MS. O'DELL: Okay. All right. 2003?</p> <p>16 MR. ZELLERS: Yes.</p> <p>17 Q (BY MR. ZELLERS) So are you with me? Are</p> <p>18 you looking at your last couple of lines there on</p> <p>19 page 26?</p> <p>20 A Yes.</p> <p>21 Q And you do say that the difference between</p> <p>22 a relative risk of 1.19 and 1.38 is small; is that</p> <p>23 right?</p> <p>24 A It -- odds ratios --</p> <p>25 Q Yeah.</p>

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<p>1 A -- but yes.</p> <p>2 Q All right. And -- and so a difference in</p> <p>3 odds ratios of .19, you would consider that to be a</p> <p>4 small difference?</p> <p>5 MS. O'DELL: Object to the form.</p> <p>6 A You're asking why I said those differences</p> <p>7 are small?</p> <p>8 Q (BY MR. ZELLERS) No. Well, what I guess</p> <p>9 what I want to know is: Would you agree that the</p> <p>10 difference between an odds ratio of 1.0 and 1.2 is</p> <p>11 small?</p> <p>12 MS. O'DELL: Object to the form.</p> <p>13 A I think the question of whether or not you</p> <p>14 have a difference of absolute odds of .2 along</p> <p>15 different values means the same thing. And I would</p> <p>16 say it doesn't mean the same thing.</p> <p>17 So if you have an odds ratio as an example</p> <p>18 of 4.7 versus 4.9, they're kind of the same number.</p> <p>19 If you have a number that's 1.0 versus 1.2, those</p> <p>20 are not the same number.</p> <p>21 So I don't think you would want to assume</p> <p>22 the shift in the absolute magnitude of the</p> <p>23 difference in odds. I often published difference in</p> <p>24 odds ratios of .2 is stable.</p> <p>25 But I think is -- your point is well taken</p>	<p>1 A Yeah.</p> <p>2 Q -- yesterday?</p> <p>3 A So the most important -- as it points out</p> <p>4 here in -- in Huncharek, the next sentence of where</p> <p>5 we are, is that this review looked at any exposure</p> <p>6 rather than quantifying.</p> <p>7 And I think the primary concern that I had</p> <p>8 was that any exposure is a very vague definition.</p> <p>9 And I thought it was much more important to have a</p> <p>10 meaningful measure of exposure.</p> <p>11 So the studies that I primarily included</p> <p>12 were ones that had quantification of the exposure,</p> <p>13 but also had some other requirements.</p> <p>14 I -- I -- I want to say that my systematic</p> <p>15 review was one piece of the information that I</p> <p>16 considered, but my summary estimate in the</p> <p>17 systematic review that I completed had the same</p> <p>18 conclusion as all these other systematic reviews.</p> <p>19 In the ballpark, it just gave me greater</p> <p>20 confidence that we were truly looking at regular</p> <p>21 exposure rather than any exposure.</p> <p>22 Now, we know that the most common exposure</p> <p>23 is regular exposure. That's the -- the more</p> <p>24 important -- most common.</p> <p>25 Q Take a look at page 39 in your report</p>
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<p>1 that that's not a trivial difference. I was just</p> <p>2 saying in the context of a systematic review, those</p> <p>3 are both very strong, positive associations, and</p> <p>4 that's a relatively minor difference.</p> <p>5 Q (BY MR. ZELLERS) An odds ratio range of</p> <p>6 1.19 to 1.38 is much closer to an odds ratio of 1.0</p> <p>7 to 1.2 than it is to an odds ratio of 4.5 to 4.7,</p> <p>8 correct?</p> <p>9 A I -- I think that's a valid -- a valid</p> <p>10 comparison.</p> <p>11 Q On page 26, 27, there's a carryover there,</p> <p>12 but you state that the population controls are more</p> <p>13 likely relevant and valid than hospital controls.</p> <p>14 What's your support for that?</p> <p>15 A It's what we discussed earlier. I -- I</p> <p>16 think population-based controls are -- are better</p> <p>17 than hospital-based controls.</p> <p>18 Q With respect to your systematic review,</p> <p>19 did you attempt to identify gaps or flaws in the</p> <p>20 underlying studies?</p> <p>21 A I reviewed the individual studies and set</p> <p>22 forth criteria that I thought were required for</p> <p>23 inclusion.</p> <p>24 Q What were those criteria? Are those</p> <p>25 contained in your forms that we talked about --</p>	<p>1 where you discuss temporality; is that right?</p> <p>2 A Yes.</p> <p>3 Q You say that women may use talc when</p> <p>4 undergoing ovarian cancer treatment.</p> <p>5 Do you see that?</p> <p>6 A Yes.</p> <p>7 Q What is your support for that or what is</p> <p>8 that statement based on?</p> <p>9 A I -- I think it's based on my clinical</p> <p>10 experience that postop patients often will use</p> <p>11 talcum powder products for systematic relief of</p> <p>12 symptoms that could be related to the surgical</p> <p>13 procedure itself.</p> <p>14 Q All right. Asbestos. Are your opinions</p> <p>15 in this case dependent on talcum powder containing</p> <p>16 asbestos?</p> <p>17 A No, they're not.</p> <p>18 Q Are your opinions in this case dependent</p> <p>19 on talcum powder containing trace amounts of metals?</p> <p>20 MS. O'DELL: Object to the form.</p> <p>21 A No, they're not.</p> <p>22 Q (BY MR. ZELLERS) Are your opinions in this</p> <p>23 case dependent upon talcum powder containing any</p> <p>24 particular fragrance chemical?</p> <p>25 A No, they're not.</p>

18 (Pages 310 to 313)

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<p style="text-align: right;">Page 314</p> <p>1 Q Do you believe that talcum powder, which 2 does not contain asbestos, causes ovarian cancer? 3 A I don't have any data on which to conclude 4 based on epidemiologic evidence that there is such a 5 product, so I don't know that there is any product 6 that has been studied that doesn't contain asbestos 7 and fibrous talc. 8 I think in a laboratory setting, people 9 have studied products that they describe as being 10 asbestos free, and those products do cause cellular 11 damage. 12 But from an epidemiologic perspective, 13 which is primarily the data I looked at, all of the 14 products that have been studied, I believe contain 15 asbestos and fibrous talc. 16 Q You have made an assumption or it is your 17 belief that all talcum powder products contain 18 asbestos; is that right? 19 MS. O'DELL: Object to the form. 20 A My belief is that many talcum powder 21 products contain asbestos or -- 22 Q (BY MR. ZELLERS) If -- 23 A -- fibrous. 24 Q -- if your assumption about contamination 25 of talcum powder products with asbestos were not</p>	<p style="text-align: right;">Page 316</p> <p>1 A I -- I haven't seen any. 2 Q (BY MR. ZELLERS) Have you requested any? 3 MS. O'DELL: Object to the form. There 4 have been no defense expert reports in this case. 5 MR. ZELLERS: Counsel, please object to 6 form. There have been many defense expert reports 7 in the talcum powder litigation generally. 8 But my question was whether or not she has 9 seen anything, so she can -- I think she has already 10 answered. 11 Q (BY MR. ZELLERS) Is that right? Have you 12 answered the question? 13 MS. O'DELL: Object to the form. 14 A I have asked to see reports. No. I have 15 asked to see testing results. I have not asked to 16 see reports. 17 Q (BY MR. ZELLERS) Have you seen testing 18 results from the FDA and its testing of talcum 19 powder? 20 A I have. 21 Q The FDA did some testing in 2010. Did you 22 see those results? 23 A I did. 24 MS. O'DELL: Do you need a break or are 25 you good or --</p>
<p style="text-align: right;">Page 315</p> <p>1 true, would that change your opinions in this case? 2 MS. O'DELL: Object to the form. 3 A In -- in this case, it would not. I -- 4 I -- the epidemiologic evidence is very strong that 5 exposure to talcum powder products, whatever it 6 contains, is carcinogenic. 7 Q (BY MR. ZELLERS) You have looked at 8 several reports from Dr. Longo; is that right? 9 A I have. 10 Q You're aware he is a paid litigation 11 expert; is that right? 12 A Yes, I am. 13 Q You're aware he wrote his reports for the 14 purpose of this litigation and that those reports 15 have not been published; is that right? 16 A I -- I know that he has generated a report 17 for this, yes. 18 Q Do you know if any defense ex -- strike 19 that. 20 Do you know if any defense experts have 21 addressed or responded to Dr. Longo's litigation 22 reports? 23 MS. O'DELL: I would object to the form. 24 There's been no defense reports in this case, as you 25 know.</p>	<p style="text-align: right;">Page 317</p> <p>1 A I actually would love a -- a break. I 2 don't mind going a few more minutes, if that would 3 be good or -- but otherwise, I would love a break. 4 MS. O'DELL: Whenever is a good time. 5 MR. ZELLERS: Sure. I'll just finish 6 this. 7 Q (BY MR. ZELLERS) I'll hand you the 8 exhibit, Exhibit 32. 9 (Exhibit 32 was marked for identification 10 and is attached to the transcript.) 11 Q (BY MR. ZELLERS) Is that -- 12 A Thank you. 13 Q -- the -- at least some of the testing by 14 the FDA that you have seen? 15 A Yes, it is. 16 Q That testing was done by an independent 17 laboratory; is that right? 18 A I -- I -- I don't know that, but I believe 19 you. 20 Q Take -- 21 MS. O'DELL: Do you have a copy for me? 22 MR. ZELLERS: Oh, I'm so sorry. I have 23 that, yes. Sorry. 24 MS. O'DELL: Thanks. 25 Q (BY MR. ZELLERS) If you go to the second</p>

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<p>1 page, the second paragraph, We contracted with AMA</p> <p>2 Analytical Services of Lanham, Maryland, to conduct</p> <p>3 this laboratory service -- or strike that -- survey.</p> <p>4 Do you see that?</p> <p>5 A I don't. I'm on the right page.</p> <p>6 Q On the second page.</p> <p>7 A The second page.</p> <p>8 Q The second paragraph, the second --</p> <p>9 A Yes.</p> <p>10 Q -- sentence --</p> <p>11 A -- yes. Yes. Thank you.</p> <p>12 Q All right.</p> <p>13 A Yes.</p> <p>14 Q And at least based upon this report, no</p> <p>15 asbestos was detected in the talcum powder that was</p> <p>16 tested; is that right?</p> <p>17 A In the reports that they show, which</p> <p>18 might -- my understanding is that they had two</p> <p>19 samples of baby powder, talcum powder in this. And</p> <p>20 that in those two specimens using the testing method</p> <p>21 they used, they didn't find evidence of asbestos.</p> <p>22 MR. ZELLERS: All right. Let's take a</p> <p>23 break.</p> <p>24 THE VIDEOGRAPHER: The time is 10:47 a.m.</p> <p>25 We are now off the record.</p>	<p>1 would like -- she edits all of my publications</p> <p>2 before I submit them.</p> <p>3 Q (BY MR. ZELLERS) When we left the last</p> <p>4 session, I asked you about asbestos and whether or</p> <p>5 not asbestos is contained in talcum powder.</p> <p>6 Is there any amount of asbestos that would</p> <p>7 be safe in talcum powder products?</p> <p>8 A And the simple answer would be no, I don't</p> <p>9 think there's any amount that would be safe in</p> <p>10 talcum powder products.</p> <p>11 Q All right. Is there any amount of trace</p> <p>12 metals that would be safe in talcum powder products?</p> <p>13 MS. O'DELL: Object to the form.</p> <p>14 A I believe there would be amounts of trace</p> <p>15 metals that would be acceptable.</p> <p>16 Q (BY MR. ZELLERS) Are there any amounts of</p> <p>17 fragrance chemicals that would be safe in talcum</p> <p>18 powder products?</p> <p>19 A I believe there would be in certain</p> <p>20 categories. And in others, there would not.</p> <p>21 Q There have been no fragrance chemicals, to</p> <p>22 your knowledge, that have been found in a study to</p> <p>23 be associated with ovarian cancer, correct?</p> <p>24 MS. O'DELL: Object to the form.</p> <p>25 A I -- I know of no -- no such exploration.</p>
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<p>1 (A break was taken from 10:47 a.m. to 1</p> <p>2 11:00.)</p> <p>3 THE VIDEOGRAPHER: It's 11:00 a.m. We are</p> <p>4 now back on the record. Here begins Media No. 2 of</p> <p>5 the deposition of Dr. Rebecca Smith-Bindman, Ph.D.,</p> <p>6 Volume II.</p> <p>7 Q (BY MR. ZELLERS) Dr. Smith-Bindman, I was</p> <p>8 handed the invoice for Chris Tachibana, which we</p> <p>9 have marked as Exhibit 33.</p> <p>10 (Exhibit 33 was marked for identification</p> <p>11 and is attached to the transcript.)</p> <p>12 Q (BY MR. ZELLERS) Is that the invoice that</p> <p>13 your copy editor provided to you?</p> <p>14 A Yes.</p> <p>15 Q Are there any other invoices that you have</p> <p>16 received from her?</p> <p>17 A No.</p> <p>18 Q Do you expect there to be any other work</p> <p>19 that Ms. Tachibana does with respect to your report?</p> <p>20 A Not with respect to my report.</p> <p>21 If I move ahead to publish these results,</p> <p>22 then I would likely reach out to her to help -- as</p> <p>23 well.</p> <p>24 THE COURT REPORTER: To help?</p> <p>25 A If we choose to publish the results, I</p>	<p>1 Q (BY MR. ZELLERS) Do you have an opinion on</p> <p>2 what type of asbestos is in talcum powder products?</p> <p>3 A I believe asbestos is sort of a family of</p> <p>4 chemicals. I think there are six that kind of get</p> <p>5 grouped together. I think all of them have been</p> <p>6 identified in talcum powder products, but I don't</p> <p>7 know the distribution of the different kinds.</p> <p>8 Q What type of asbestos is associated with</p> <p>9 ovarian cancer? And by that question, you believe</p> <p>10 that there's six subtypes of asbestos --</p> <p>11 MS. O'DELL: Object to the form.</p> <p>12 Q (BY MR. ZELLERS) -- is that generally your</p> <p>13 understanding?</p> <p>14 A It's generally my understanding.</p> <p>15 Q Are -- are you able to give us any</p> <p>16 opinions with respect to what type or types of</p> <p>17 asbestos is associated with ovarian cancer?</p> <p>18 A The -- the strongest summary of the</p> <p>19 relationship that I know about is in the IARC 2012</p> <p>20 reports.</p> <p>21 And those are from a number of different</p> <p>22 studies, including some cohort studies and case</p> <p>23 control studies.</p> <p>24 To my knowledge, I don't know that they</p> <p>25 have divided them by the type of mineral silicate</p>

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<p style="text-align: right;">Page 322</p> <p>1 fibers that were in those studies.</p> <p>2 Q What amount of asbestos exposure is</p> <p>3 associated with ovarian cancer?</p> <p>4 MS. O'DELL: Object to the form.</p> <p>5 A To the best of my knowledge, the amount</p> <p>6 that's contained within talc powder products is</p> <p>7 probably associated with -- the amount that's in</p> <p>8 there is probably the -- cancer.</p> <p>9 Q (BY MR. ZELLERS) Can you be any more</p> <p>10 definitive?</p> <p>11 A The talcum powder products that women have</p> <p>12 used is associated with ovarian cancer. And I</p> <p>13 believe that to know how much asbestos it takes to</p> <p>14 cause cancer, the easiest way to answer that is to</p> <p>15 quantify how much asbestos is within the --</p> <p>16 the powder products.</p> <p>17 So I'm not in any way an expert on this.</p> <p>18 But in the Longo report, it talked about an average</p> <p>19 of 50,000 particles of asbestos being in each</p> <p>20 gram of -- on average in each gram of baby powder</p> <p>21 products.</p> <p>22 And he estimates that in a container, that</p> <p>23 would be millions of particles, which seems like a</p> <p>24 large number to me, but -- so I don't know the</p> <p>25 amount that would be required to be carcinogenic,</p>	<p style="text-align: right;">Page 324</p> <p>1 A I did not.</p> <p>2 Q Would you agree that research on the</p> <p>3 potential relationship between asbestos and ovarian</p> <p>4 cancer has only considered a small number of cases?</p> <p>5 MS. O'DELL: Object to the form.</p> <p>6 A I think the IARC review on the</p> <p>7 occupational exposures to asbestos had quite a</p> <p>8 number of cancers, but I would have to go back to</p> <p>9 those studies to remember the number.</p> <p>10 Q (BY MR. ZELLERS) Did you review the Reid</p> <p>11 2011 study?</p> <p>12 A I believe that's one that I -- I reviewed.</p> <p>13 Q Do you need me to hand that to you if --</p> <p>14 A Yes --</p> <p>15 Q -- ask you a couple of questions about it?</p> <p>16 A -- please.</p> <p>17 Q Now, in the Reid 2011 paper, which we will</p> <p>18 mark as Exhibit 34 --</p> <p>19 A And is that one of the studies that</p> <p>20 Camargo included in -- I think it is -- in his</p> <p>21 systematic review? Yeah. So this is a different</p> <p>22 systematic review.</p> <p>23 (Exhibit 34 was marked for identification</p> <p>24 and is attached to the transcript.)</p> <p>25 Q (BY MR. ZELLERS) Do you recognize</p>
<p style="text-align: right;">Page 323</p> <p>1 but that's the amount that they were exposed to that</p> <p>2 was carcinogenic.</p> <p>3 Q What type of ovarian cancer is asbestos</p> <p>4 associated with?</p> <p>5 MS. O'DELL: Object to the form.</p> <p>6 A I think the most stable estimate of the</p> <p>7 association of talcum powder products with ovarian</p> <p>8 cancer is for all ovarian cancer and the</p> <p>9 meta-analysis that others did. And my summary</p> <p>10 estimate was for all ovarian cancer -- epithelial</p> <p>11 ovarian cancer, I should say.</p> <p>12 In my more limited review, I focused on</p> <p>13 serous cancer, because I think as the most common</p> <p>14 cancer -- the most common invasive cancer, it's the</p> <p>15 one where there's enough statistical power to</p> <p>16 quantify the association, so I think the data are</p> <p>17 the most compelling for serous ovarian cancer.</p> <p>18 But the overall meta-analysis looks at any</p> <p>19 cancer, and that's what we did as well.</p> <p>20 Q You -- you looked at talcum powder,</p> <p>21 correct?</p> <p>22 A Talcum powder products, yes.</p> <p>23 Q You did not undertake a Bradford Hill</p> <p>24 analysis of the literature on asbestos and ovarian</p> <p>25 cancer, correct?</p>	<p style="text-align: right;">Page 325</p> <p>1 Exhibit 34?</p> <p>2 A No.</p> <p>3 Q Okay. Well, Exhibit 34 is a study and --</p> <p>4 and a review by the first named author, Allison</p> <p>5 Reid.</p> <p>6 "Does Exposure to Asbestos Cause Ovarian</p> <p>7 Cancer?"</p> <p>8 A I -- I have seen this paper.</p> <p>9 Q All right.</p> <p>10 A I'm sorry. I didn't remember. So sorry.</p> <p>11 Q If you look at her conclusions -- or the</p> <p>12 author's conclusions on the right-hand side of the</p> <p>13 first page -- so I'm --</p> <p>14 A Yes.</p> <p>15 Q -- looking right here --</p> <p>16 A Yes.</p> <p>17 Q -- the relationship between asbestos</p> <p>18 exposure and ovarian cancer is not well</p> <p>19 understood -- is not as well understood as -- as</p> <p>20 that of asbestos-related diseases. Studies that</p> <p>21 have examined this issue have been limited for two</p> <p>22 major reasons.</p> <p>23 No. 1, there's a small number of cases.</p> <p>24 And No. 2, there's difficulties with diagnosis and</p> <p>25 specifically distinguishing between peritoneal</p>

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<p>1 mesothelioma and ovarian cancer; is -- is that 2 right? 3 MS. O'DELL: Object to the form. 4 A So this -- those are the conclusions that 5 she makes. But I -- I want just to explain what she 6 means by "small number of cases." 7 She's comparing it to the number of men 8 exposed to asbestos. Just there -- there are many 9 more men exposed to asbestos than -- than women 10 exposed to asbestos. 11 So I think -- I mean, I -- I think it's a 12 challenge, but I -- wouldn't say that there are a 13 small number of cases. 14 MR. ZELLERS: Move to strike as 15 nonresponsive. 16 Q (BY MR. ZELLERS) Would you agree that most 17 of the studies that have been done and the data that 18 exists relates to occupational exposure of asbestos 19 and ovarian cancer? 20 A Yes. I -- 21 Q All right. 22 A -- yes. 23 Q You looked at the Camargo paper 2011; is 24 that right? 25 A Yes.</p>	<p>1 author state, Further limitation of our analysis was 2 its inability to account for nonoccupational risk 3 factors for ovarian cancer other than age? 4 A Yes, I do see that. 5 Q On page 25 -- I'm sorry -- 1215. So the 6 page before the second paragraph under "Discussion," 7 they talk about Edelman 1992; is that right? 8 A Yes. 9 Q And the authors state, They concluded, 10 however, that despite the positive and significant 11 association, there was insufficient information to 12 infer that ovarian cancers were caused by 13 occupational exposure to asbestos -- 14 A I -- I'm sorry. I -- 15 Q Sure. 16 A -- I -- I'm lost. Where are we? 17 Q Okay. So do you see under "Discussion" -- 18 A Yes. 19 Q -- the second paragraph -- 20 A Yes. 21 Q -- I believe the second sentence? It 22 says, They concluded. 23 Are you with me? 24 A Yes. They are describing another 25 meta-analysis --</p>
Page 327	Page 329
<p>1 Q That study points out that there's an 2 inability to account for nonoccupational risk 3 factors for ovarian cancer in these studies other 4 than age; is that right? 5 MS. O'DELL: If -- if you remember. If 6 you need to see -- 7 A I -- I don't remember. 8 Q (BY MR. ZELLERS) All right. Do you have 9 the Camargo paper in front -- 10 A I -- 11 Q -- of you or would you like me to give it 12 to you? 13 A -- please. 14 Q Camargo 2011, we will mark as deposition 15 Exhibit 35. 16 (Exhibit 35 was marked for identification 17 and is attached to the transcript.) 18 A Thank you. 19 Q (BY MR. ZELLERS) Do you have that in front 20 of you now? 21 MS. O'DELL: Thank you. 22 A Yes, I do. 23 Q (BY MR. ZELLERS) Camargo. Take a look, if 24 you will, you know, on page 1216. The second 25 paragraph above "Conclusion," does Camargo and the</p>	<p>1 Q Yes. 2 A -- they concluded, yes. 3 Q This -- this is a review of different meta 4 -- 5 A Yeah. 6 Q -- analyses; is that right? 7 A Yes. 8 Q And they're describing Edelman 1992. And 9 they state, They concluded, however, that despite 10 the positive and significant association, there was 11 insufficient information to infer that ovarian 12 cancers were caused by occupational exposure to 13 asbestos because of concerns about tumor 14 misclassification, inappropriate comparison 15 populations, and the failure to take into account 16 for known risk factors. 17 Is that right? 18 A You're reading from Camargo, who is 19 quoting from a discussion by Edelman, so that -- 20 that's what it says. I -- I don't -- I don't know 21 that that's what Edelman says, but -- but yes, 22 that's the... 23 Q Wouldn't you expect to find higher rates 24 of other cancers in women using talc, like 25 mesothelioma, if they are being exposed to</p>

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<p style="text-align: right;">Page 330</p> <p>1 substantial amounts of asbestos?</p> <p>2 MS. O'DELL: Object to the form.</p> <p>3 A I -- I'm confused. I'm confused. Are you</p> <p>4 saying women exposed to asbestos are not getting</p> <p>5 mesothelioma?</p> <p>6 Q (BY MR. ZELLERS) Well, let me ask it this</p> <p>7 way: Are -- are women who use talc in the perineal</p> <p>8 region at greater risk of mesothelioma?</p> <p>9 A I do not know studies that have said that.</p> <p>10 Q Are women who use talc in the perineal</p> <p>11 region at greater risk of asbestosis?</p> <p>12 A In the lungs?</p> <p>13 Q Yes.</p> <p>14 A I -- I do not know those studies.</p> <p>15 Q With respect to fragrance chemicals, you</p> <p>16 have no evidence that the blood or tissue levels of</p> <p>17 any trace metals are higher in genital talc users</p> <p>18 compared to nonusers, correct?</p> <p>19 A I -- I don't know that literature at all.</p> <p>20 Q And you have no knowledge as to either the</p> <p>21 amount or concentration of different fragrance</p> <p>22 chemicals in the baby powder, correct?</p> <p>23 A I -- I do not.</p> <p>24 MR. ZELLERS: Okay. I have no further</p> <p>25 questions. My colleagues may have some questions.</p>	<p style="text-align: right;">Page 332</p> <p>1 Q Okay. So when -- if you answered a</p> <p>2 question, is it because you believe you understood</p> <p>3 it and that you felt able to answer it?</p> <p>4 A Yes.</p> <p>5 MS. O'DELL: Object to the form.</p> <p>6 Q (BY MS. BOCKUS) Okay. So before being</p> <p>7 hired in this case, you had not really looked at the</p> <p>8 association between talc and ovarian cancer; is that</p> <p>9 fair?</p> <p>10 A That's correct.</p> <p>11 Q The person who wrote to you first, do you</p> <p>12 remember if it was a male or a female, the attorney?</p> <p>13 A I think it was a women.</p> <p>14 Q Okay. And have you -- tell me what search</p> <p>15 you have done to locate that person's name.</p> <p>16 A I could probably search some more. I --</p> <p>17 I -- my correspondence with these lawyers that I</p> <p>18 have a document of on my computer is from July.</p> <p>19 But Mike reminded me that I must have met</p> <p>20 with them in June. So I could go through -- there</p> <p>21 are ways I can access older e-mails to look if</p> <p>22 that's important to you. I'm happy to try and find</p> <p>23 that person.</p> <p>24 Q I just was curious. There -- because you</p> <p>25 have nothing in the published literature about the</p>
<p style="text-align: right;">Page 331</p> <p>1 MS. BOCKUS: Could we go off the record</p> <p>2 for just a minute to move the microphone down?</p> <p>3 THE VIDEOGRAPHER: The time is 11:16 a.m.</p> <p>4 We are off the record.</p> <p>5 (A break was taken from 1:16 a.m. to 11:17</p> <p>6 a.m.)</p> <p>7 THE VIDEOGRAPHER: The time is 11:17 a.m</p> <p>8 we are now back on the record.</p> <p>9 EXAMINATION BY COUNSEL FOR THE DEFENDANTS</p> <p>10 BY MS. BOCKUS:</p> <p>11 Q Good morning, Doctor. I introduced myself</p> <p>12 yesterday, I hope. I'm not sure I did. I'm Jane</p> <p>13 Bockus. I represent Imerys in this matter.</p> <p>14 How are you feeling today?</p> <p>15 A I'm good. Thank you.</p> <p>16 Q Have you gone back to work full time since</p> <p>17 your skiing accident?</p> <p>18 A I am primarily a researcher, so I get to</p> <p>19 choose my own hours. So I have gone back to work</p> <p>20 full time, but I often leave work a little earlier</p> <p>21 and take a rest.</p> <p>22 Q Has your injury from your skiing accident</p> <p>23 affected your ability to answer all the questions</p> <p>24 you have been asked in the last day and a half?</p> <p>25 A It has not.</p>	<p style="text-align: right;">Page 333</p> <p>1 etiology of ovarian cancer, correct?</p> <p>2 A I do not. And I will tell you I asked the</p> <p>3 person who contacted me what the case was about, was</p> <p>4 it an area of my expertise.</p> <p>5 And the person who contacted me, I think,</p> <p>6 was someone who knew of me from another case. And</p> <p>7 it was my researching abilities, not my content</p> <p>8 expertise, that led her to reach out to me.</p> <p>9 Q Okay. So it was with the understanding</p> <p>10 that you would start a whole new area of research in</p> <p>11 order to answer the question; is that correct?</p> <p>12 MS. O'DELL: Object to the form.</p> <p>13 A Yes.</p> <p>14 Q (BY MS. BOCKUS) Okay. In fact, when you</p> <p>15 appeared before congress, you stated that you're a</p> <p>16 clinical radiologist and you conduct research</p> <p>17 focusing on -- or focused on assessing the risk and</p> <p>18 benefits of medical imaging, correct?</p> <p>19 A If -- if you have my testimony there, I'm</p> <p>20 going to believe you.</p> <p>21 Q And when you have given interviews or have</p> <p>22 written opinion pieces, you identify yourself as</p> <p>23 primarily a radiologist who focuses on evaluating</p> <p>24 the risks and benefits of medical imaging, correct?</p> <p>25 MS. O'DELL: Object to the form.</p>

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<p style="text-align: right;">Page 334</p> <p>1 A So I have given a lot of interviews, and I 2 often identify as a professor of epidemiology and 3 biostatistics. I'm not sure what interview that you 4 are looking at. 5 I often -- often introduce myself as a 6 professor of obstetrics, gynecology, and 7 reproductive sciences. 8 And my guess is that whomever is 9 publishing the interview will choose to present me 10 in a way that they think highlights my skill. 11 But -- but my -- I'm a professor in 12 radiology and epidemiology and biostatistics, 13 obstetrics, gynecology, and a member of the Philip 14 R. Lee Institute for Health Policies Studies. 15 So I -- I get presented with whichever of 16 those first the presenter thinks might highlight my 17 expertise. 18 Q Are you board-certified in obstetrics and 19 gynecology? 20 A I'm not. 21 Q The Bradford Hill criteria, the first 22 consideration is the "strength of the association"; 23 is that correct? 24 A First criteria? Yes. 25 Q What do you consider to be a strong</p>	<p style="text-align: right;">Page 336</p> <p>1 about a quantitative association, but rather, the 2 biases and legitimacy of the association. 3 Q Are you familiar with the text "Analysis 4 of Case-Control Studies" by Breslow and Day? 5 A I -- I -- yes. 6 Q Do you find that to be a reliable text on 7 the subject of the analysis of case-control studies? 8 MS. O'DELL: Object to the form. 9 A I -- I don't know that chapter or section 10 enough to answer that question without looking at 11 it. 12 Q (BY MS. BOCKUS) But you're familiar with 13 their work? 14 A Yes. 15 Q And they're well-respected 16 epidemiologists? 17 A Yes. 18 MS. O'DELL: Object to the form. 19 Q (BY MS. BOCKUS) You make a statement in 20 your report on page 12 that the most widely accepted 21 mechanism for initiation, promotion, and progression 22 of ovarian cancer is tissue inflammation leading to 23 a series of responses that result in cancer. 24 And you have talked about that sentence a 25 bit with Mr. Zellers already.</p>
<p style="text-align: right;">Page 335</p> <p>1 association? 2 A So it overlaps a little bit with the 3 second concept of Bradford Hill in the consistency 4 of -- of the data. 5 But where the association is meaningfully 6 and legitimately documented across study designs and 7 patient populations such that the association is 8 believable and meaningful, not necessarily 9 associated with a particular point estimate of 10 association, if that's the question. 11 I don't have any particular number. It's 12 rather the entirety of the relationship, that it's a 13 meaningful quantifiable association. 14 Q Do you teach epidemiology? 15 A I do. 16 Q Can you identify textbooks that you find 17 reliable on the subject of epidemiology? 18 A The textbook that I often use to teach 19 epidemiology is a book -- I -- I'm not sure if the 20 authorship has changed over the years, but by holly 21 Cummings that talks about principles of 22 epidemiology. It's sort of the clearest version 23 that I know. 24 And -- and they -- and I haven't looked 25 this particular question up, but they wouldn't talk</p>	<p style="text-align: right;">Page 337</p> <p>1 Did you do a survey of the literature to 2 determine what was the most widely accepted 3 mechanism for initiation of ovarian cancer? 4 A I did. 5 Q And did you do a survey of the cancer 6 biology literature? 7 MS. O'DELL: Object to the form. 8 A What was the first literature you asked me 9 about? 10 Q (BY MS. BOCKUS) The literature that 11 supported your statement that the most widely 12 accepted mechanism was inflammation. 13 And you said you did a survey on the 14 inflammation literature -- or I mean on the 15 etiology -- let me start all over again. 16 Have you done a survey on articles that 17 discuss the likely mechanism for the etiology of 18 ovarian cancer? 19 A Yes, I have . 20 Q Have you -- have you -- did your survey 21 include the literature on the cancer biology -- 22 A Yes. 23 Q -- of -- 24 A Yes, it did. 25 Q -- of ovarian cancer?</p>

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<p style="text-align: right;">Page 338</p> <p>1 A Yes, it did.</p> <p>2 Q And did you find that as the issue of</p> <p>3 inflammation as an initiator of ovarian cancer is</p> <p>4 not a settled question?</p> <p>5 MS. O'DELL: Object to the form.</p> <p>6 A I -- I would acknowledge that -- that none</p> <p>7 of it is settled. It's just the most widely</p> <p>8 accepted, most widely supported, most wide -- widely</p> <p>9 enhanced view supported by the data, but I don't</p> <p>10 think the issue is settled.</p> <p>11 Q (BY MS. BOCKUS) In fact, there's still</p> <p>12 considerable research going on on the subject --</p> <p>13 A Yes --</p> <p>14 Q -- correct?</p> <p>15 A -- I think there is.</p> <p>16 Q In the next paragraph you talk about, for</p> <p>17 example, this is the middle -- there are</p> <p>18 well-described and accepted causal pathways</p> <p>19 linking in -- linking inflammation to bladder</p> <p>20 cancer, gastric cancer, colon cancer, et cetera.</p> <p>21 You would agree and you identify the</p> <p>22 inflammatory sometimes virus or whatever that's --</p> <p>23 that's well described and accepted for all of the</p> <p>24 different cancers that you list there, correct?</p> <p>25 For example, you identify toxic chemicals</p>	<p style="text-align: right;">Page 340</p> <p>1 with body powder use and ovarian cancer, correct?</p> <p>2 MS. O'DELL: Object to the form.</p> <p>3 A I -- I'm going to go back to say that I --</p> <p>4 I don't know what the strength of the association is</p> <p>5 with -- with these individual cancers.</p> <p>6 I -- I don't know if it's a 20 percent</p> <p>7 increase or a 500 percent increase, except for the</p> <p>8 one that I gave the example of of bladder cancer.</p> <p>9 So for bladder cancer, I gave two examples</p> <p>10 that cause inflammation of the bladder. One being</p> <p>11 toxic chemicals and the second being cigarette</p> <p>12 smoking.</p> <p>13 The toxic chemicals have a very strong</p> <p>14 relative risk of 200 or 300, where I think smoking</p> <p>15 has a relative risk of more like 1.3.</p> <p>16 And so I -- I -- I don't know it for these</p> <p>17 other cancers. But at least for bladder cancer,</p> <p>18 which I think is -- I think the second most common</p> <p>19 cancer and cigarette smoke is -- I think the</p> <p>20 association in the ballpark of 1.3.</p> <p>21 I think I have it in here. But -- so for</p> <p>22 most of these, I don't know what that number is.</p> <p>23 MS. BOCKUS: I'm going to object as</p> <p>24 nonresponsive.</p> <p>25 Q (BY MS. BOCKUS) Because the question I</p>
<p style="text-align: right;">Page 339</p> <p>1 for the etiology of bladder cancer, correct?</p> <p>2 MS. O'DELL: Object to the form.</p> <p>3 Q (BY MS. BOCKUS) Do you see where I'm</p> <p>4 reading?</p> <p>5 A I -- I don't see where you're reading</p> <p>6 exactly, but -- but I agree with you that I have</p> <p>7 given examples where we know the cause of the</p> <p>8 inflammation for many of those cancers.</p> <p>9 Q (BY MS. BOCKUS) You would agree that there</p> <p>10 is no equivalent literature linking ovarian cancer</p> <p>11 to talcum powder use, correct?</p> <p>12 MS. O'DELL: Object to the form.</p> <p>13 A I think there's a strong literature on</p> <p>14 components of the analysis. But I think for several</p> <p>15 of the examples I have given, the data are a little</p> <p>16 bit clearer and further along.</p> <p>17 So path -- HPV and cervical cancer has a</p> <p>18 longer historical data collection period when we</p> <p>19 have them --</p> <p>20 Q (BY MS. BOCKUS) And --</p> <p>21 A -- identified. So I think that's your</p> <p>22 question.</p> <p>23 Q -- so the strength of the association</p> <p>24 between HPV virus and cervical cancer is much, much</p> <p>25 stronger than any association that's been reported</p>	<p style="text-align: right;">Page 341</p> <p>1 asked was about the HPV virus and cervical cancer --</p> <p>2 A I don't --</p> <p>3 Q -- correct?</p> <p>4 A -- know the -- the relative --</p> <p>5 Q All right.</p> <p>6 A -- risk for that. But I -- I thought I</p> <p>7 said the only one I do know is the bladder cancer</p> <p>8 numbers.</p> <p>9 Q Has your methodology in determining what</p> <p>10 studies to include and what studies to exclude been</p> <p>11 peer reviewed in any way, shape, or form?</p> <p>12 A It has not.</p> <p>13 Q Has your math --</p> <p>14 A Oh, I'm sorry. Has my methodology been</p> <p>15 peer reviewed?</p> <p>16 Q In -- in this particular case, the method</p> <p>17 --</p> <p>18 A Okay. The method has been peer reviewed.</p> <p>19 But in this particular case, it has not.</p> <p>20 Q So no one has looked over your report and</p> <p>21 determined whether your decision -- and as I</p> <p>22 understand it, it was your decision alone, correct,</p> <p>23 as to whether to include data from a particular</p> <p>24 study or not --</p> <p>25 A Again --</p>

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<p>1 Q -- and --</p> <p>2 A -- it was a decision between myself and</p> <p>3 the -- and -- and -- and Dr. Hall --</p> <p>4 Q So --</p> <p>5 A -- just the two of us.</p> <p>6 Q -- okay. So did Dr. Hall participate in</p> <p>7 the decision-making process as to which of the</p> <p>8 case-control studies and the cohort studies to</p> <p>9 include and which to exclude?</p> <p>10 A It -- so it's -- it's a -- the answer is</p> <p>11 partly and partly not.</p> <p>12 So in terms of whether the studies were</p> <p>13 included in the final analysis, Dr. Hall was</p> <p>14 involved in that decision.</p> <p>15 But in terms of setting up the question to</p> <p>16 begin with, she was not involved in that. I -- I</p> <p>17 set that up.</p> <p>18 Q So other than you and Dr. Hall, has anyone</p> <p>19 been involved in the process of determining which</p> <p>20 studies were going to be involved -- in -- were</p> <p>21 going to be included in your systematic review and</p> <p>22 which were not?</p> <p>23 A Nobody else.</p> <p>24 Q Okay. And has anyone other than you and</p> <p>25 Dr. Hall even checked your work for transcription</p>	<p>1 Q Would you agree that you're -- at this</p> <p>2 point in time your report is not yet ready to be</p> <p>3 submitted for peer review?</p> <p>4 MS. O'DELL: Object to the form.</p> <p>5 A I would agree that the description in this</p> <p>6 report needs more detail, more -- to submit it to</p> <p>7 peer review. Not necessarily different work, but</p> <p>8 definitely different detail and description.</p> <p>9 Q (BY MS. BOCKUS) Have you satisfied</p> <p>10 yourself that the studies that you did include do</p> <p>11 not overlap with regard to patients; that you</p> <p>12 haven't counted the same patients multiple times?</p> <p>13 A I -- I am comfortable that I did my best</p> <p>14 to do that. But I know there were some cases where</p> <p>15 I felt like I wasn't 100 percent sure.</p> <p>16 Q And you would agree that by -- including</p> <p>17 the same cases and controls multiple times could</p> <p>18 skew the -- the data?</p> <p>19 MS. O'DELL: Object to the form.</p> <p>20 A I think that that theoretically is a</p> <p>21 concern of mine, which is why I try to you exclude</p> <p>22 them if there was overlap.</p> <p>23 On a practical level, the benefit of</p> <p>24 pooling data from multiple sources is that the final</p> <p>25 summary is less sensitive to any individual result,</p>
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<p>1 errors?</p> <p>2 MS. O'DELL: Object to the form.</p> <p>3 A No.</p> <p>4 Q (BY MS. BOCKUS) And has anyone other than</p> <p>5 you and Dr. Hall checked your work for mathematical</p> <p>6 errors?</p> <p>7 A No.</p> <p>8 Q You excluded all of the data from the</p> <p>9 cohort studies with the exception of the earliest</p> <p>10 reported data from the Nurses' Health Study; is that</p> <p>11 correct?</p> <p>12 A Yes.</p> <p>13 MS. O'DELL: Object to the form.</p> <p>14 Q (BY MS. BOCKUS) Did you run the -- the --</p> <p>15 the numbers to determine if there would be a</p> <p>16 difference if you included the data from all the</p> <p>17 cohort studies and if you excluded them?</p> <p>18 A So the requirement to be in our review was</p> <p>19 to have a measure of regular use of talcum powder</p> <p>20 products, and those other studies didn't have</p> <p>21 something to plug into that equation.</p> <p>22 So -- so I didn't have a number from those</p> <p>23 studies to include in a sensitivity analysis. They</p> <p>24 -- they didn't report regular use, so I -- I</p> <p>25 couldn't do what you are asking me to have done.</p>	<p>1 let alone some patients that might overlap.</p> <p>2 But I agree with you that you want to</p> <p>3 avoid that because of that concern.</p> <p>4 Q (BY MS. BOCKUS) All right. Would you turn</p> <p>5 to page 35 of your study. And I am looking at</p> <p>6 the -- right in the middle of the page, the</p> <p>7 paragraph that starts with the word, Further talc</p> <p>8 particles.</p> <p>9 But I'm going to the last sentence in the</p> <p>10 paragraph.</p> <p>11 "The greater frequency at which talc</p> <p>12 particles are discovered in ovarian cancerous tissue</p> <p>13 than in normal ovarian tissue further supports that</p> <p>14 these target -- particles may be causing cancer."</p> <p>15 You don't have a source for that. You</p> <p>16 don't cite to any study. And I would like to know</p> <p>17 where you got that information.</p> <p>18 MS. O'DELL: Objection to form.</p> <p>19 A I would have to review Heller and</p> <p>20 Henderson. No. Henderson is just cancer.</p> <p>21 So I would have to review -- review</p> <p>22 Heller, but that -- I -- I -- I don't remember what</p> <p>23 the -- cite of it. I would have to look at the</p> <p>24 articles that I cite in that paragraph and see if I</p> <p>25 could remember.</p>

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<p>1 Q (BY MS. BOCKUS) The next statement has to 2 do with the reduction in incidence of ovarian cancer 3 after tubal ligation or hysterectomy? 4 A Yes. 5 Q Is it not correct that that statement is 6 true for both women who have used talcum powder 7 product and who -- let me ask a better question. 8 Here you're talking about that the 9 elevated -- that studies that look at the risk of 10 ovarian cancer associated with powder products 11 report a reduction in risk after hysterectomy or 12 tubal ligation, correct? 13 A Yes. 14 Q Isn't that also true in the general 15 population for all women, that there -- whether they 16 have used talcum powder products or not, that their 17 risk of ovarian cancer is reduced by hysterectomy or 18 oophorectomy -- 19 A Yes. 20 Q -- or tubal ligation? I'm sorry. 21 A Yes. It's even more reduced by 22 oophorectomy. 23 Q Well, sure. I misspoke. 24 MS. BOCKUS: I believe that's all the 25 questions I have. Thank you.</p>	<p>1 attorney who represents Defendant Personal Care 2 Products Council. 3 So for purposes of this deposition when I 4 reference "Personal Care Products Council," I mean 5 PCPC or CPFA or any of its predecessors. Is that 6 okay? 7 A Yes. 8 Q So I want to turn to Exhibit 15, which is 9 your reference list. And that reference list is 10 Exhibit B of your expert report; is that correct? 11 A Yes. 12 Q And if you can turn to page 19 of that 13 reference list. And just let me know when you're 14 there. 15 A I am there. 16 Q And if you go about 75 percent of the way 17 down, there's a reference to a PCPC document. 18 Do you see that? 19 A Yes. 20 Q Do you happen to know what that document 21 is? 22 A I do not. 23 Q Did you rely on this document -- 24 A You would have to -- 25 MS. O'DELL: Object to the form. Excuse</p>
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<p>1 MS. O'DELL: Why don't we go off the 2 record. I'm sorry. Do you -- 3 MR. ZELLERS: No. 4 MR. BILLINGS-KANG: I may have two or 5 three questions. 6 MS. O'DELL: Oh, sorry, James. Yeah, 7 please. 8 THE VIDEOGRAPHER: We are still on? 9 MS. O'DELL: Yes. 10 THE VIDEOGRAPHER: Do we want to go off? 11 MR. BILLINGS-KANG: Yeah. 12 MS. BOCKUS: We need to go off to move the 13 mic. 14 THE VIDEOGRAPHER: The time is 11:37 a.m. 15 We are going off the record. 16 (A break was taken from 11:37 a.m. to 17 11:40 a.m.) 18 THE VIDEOGRAPHER: The time is 11:40 a.m. 19 We are now back on the record. 20 EXAMINATION BY COUNSEL FOR THE DEFENDANTS 21 BY MR. BILLINGS-KANG: 22 Q Good morning, Dr. Smith-Bindman. How are 23 you? 24 A Good. 25 Q My name is James Billings-Kang. I'm an</p>	<p>1 me. Object to the form. If -- if -- 2 A -- you would have to tell me what it is to 3 know if -- 4 MS. O'DELL: -- or show it to her if 5 you -- 6 MR. BILLINGS-KANG: Sure. 7 MS. O'DELL: -- have a question about it. 8 Q (BY MR. BILLINGS-KANG) But for purposes of 9 formulating your opinion in the expert report, did 10 you rely on any PCPC-produced documents? 11 MS. O'DELL: Object to the form. 12 A You would have to show -- 13 MS. O'DELL: Put -- 14 A -- it to me. 15 MS. O'DELL: -- just put it in front of 16 her if you're going to ask her a question about it 17 so she can -- 18 Q (BY MR. BILLINGS-KANG) I'm just asking: 19 Based on your memory, do you recall using any 20 PCPC-produced document to formulate your opinion. 21 MS. O'DELL: I would -- I would just 22 object to the form. 23 Q (BY MR. BILLINGS-KANG) That's -- 24 MS. O'DELL: None of -- 25 Q (BY MR. BILLINGS-KANG) -- that's fine.</p>

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<p>1 You can answer --</p> <p>2 MS. O'DELL: None of that --</p> <p>3 Q (BY MR. BILLINGS-KANG) -- yes or no, if</p> <p>4 you remember.</p> <p>5 MS. O'DELL: -- none of us would be</p> <p>6 expected to remember a document based on a Bates</p> <p>7 number.</p> <p>8 Q (BY MR. BILLINGS-KANG) Well, I'm asking</p> <p>9 her just generally PCPC-produced documents, if she</p> <p>10 relied on any of those --</p> <p>11 MS. O'DELL: Objection.</p> <p>12 Q (BY MR. BILLINGS-KANG) -- to formulate her</p> <p>13 opinion?</p> <p>14 MS. O'DELL: Object to the form. I'm</p> <p>15 putting that --</p> <p>16 MR. BILLINGS-KANG: Sure.</p> <p>17 MS. O'DELL: -- that Bates number in front</p> <p>18 of her. And if you --</p> <p>19 MR. BILLINGS-KANG: Sure.</p> <p>20 MS. O'DELL: -- remember, you remember.</p> <p>21 A This is a document that lists different</p> <p>22 research studies that have been done over time. Is</p> <p>23 that the document that we're --</p> <p>24 Q (BY MR. BILLINGS-KANG) Well, I -- I'm not</p> <p>25 too sure. This is a document you listed in the</p>	<p>1 itself.</p> <p>2 Q Just --</p> <p>3 A I don't remember --</p> <p>4 Q -- the document --</p> <p>5 A -- seeing --</p> <p>6 Q -- itself.</p> <p>7 A -- this -- I don't remember seeing this</p> <p>8 document.</p> <p>9 Q Okay. You can -- you can put that away.</p> <p>10 And I will go to your expert report that's</p> <p>11 Exhibit 2, page 14. Just let me know when --</p> <p>12 A I'm there.</p> <p>13 Q -- you're there. And this -- the first</p> <p>14 paragraph under "Asbestos," it's about halfway in</p> <p>15 that first paragraph beginning with, Because of</p> <p>16 concern that asbestos was present in talcum powder</p> <p>17 products in the known carcinogenicity of asbestos,</p> <p>18 it has been reported that voluntarily guidelines</p> <p>19 were established by the cosmetic industry in 1976 to</p> <p>20 limit the content of asbestos fibers in commercial</p> <p>21 talc preparations.</p> <p>22 Did I read that correctly?</p> <p>23 A You did.</p> <p>24 Q And these are your words, correct?</p> <p>25 A Yes, they are.</p>
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<p>1 reference list.</p> <p>2 A I -- I'm just trying to make sure that I'm</p> <p>3 looking at the document that you are --</p> <p>4 Q According to your counsel, this is what's</p> <p>5 been identified on page 19 of the reference list.</p> <p>6 A I -- I do not remember this document.</p> <p>7 This --</p> <p>8 Q Okay.</p> <p>9 A -- document is just a list of studies.</p> <p>10 Q So you do not recall whether you relied on</p> <p>11 this document in formulating your opinion?</p> <p>12 A My --</p> <p>13 MS. O'DELL: Object to the form.</p> <p>14 A -- opinion is not based on the -- on a --</p> <p>15 a list of studies.</p> <p>16 Q (BY MR. BILLINGS-KANG) Okay. So that's --</p> <p>17 that's a -- that's a yes, you do not -- you did not</p> <p>18 rely on this document in formulating your opinion?</p> <p>19 A I -- I don't remember seeing this</p> <p>20 document. As I'm going through this document, there</p> <p>21 are a lot of studies that I reviewed that I did rely</p> <p>22 on.</p> <p>23 So I don't know if you're asking me if I</p> <p>24 relied specifically on some of the items in here</p> <p>25 that I have relied on or the -- this document</p>	<p>1 Q And what did you mean by "voluntarily</p> <p>2 guidelines"?</p> <p>3 A I -- I have read a lot about the</p> <p>4 guidelines. And it -- the idea was that the</p> <p>5 industry decided to self-regulate and to do what</p> <p>6 they could to remove the asbestos, is my</p> <p>7 understanding of what that was as opposed to being</p> <p>8 required to submit testing to document that they had</p> <p>9 done so.</p> <p>10 Q And -- and what did you rely upon for this</p> <p>11 particular sentence?</p> <p>12 A This particular sentence is repeated in --</p> <p>13 in at least half of the papers that I have read that</p> <p>14 are epidemiology papers.</p> <p>15 It's repeated in all of the news studies.</p> <p>16 It's repeated in reports by consumer organizations,</p> <p>17 by the FDA, by the recent Canadian report, which I</p> <p>18 didn't have in hand.</p> <p>19 But it's something that I -- I have read a</p> <p>20 lot -- a great deal, that there were voluntarily</p> <p>21 standards that were established by the industry.</p> <p>22 Q And so did you read any publication or</p> <p>23 whatever reliance materials that you had that</p> <p>24 described these guidelines as anything else other</p> <p>25 than voluntarily guidelines?</p>

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<p style="text-align: right;">Page 354</p> <p>1 A I -- I -- I did not. I looked for 2 documents like that. I was not able to find them. 3 Required -- requirements, I was not able to find. 4 MR. BILLINGS-KANG: Okay. That's all I 5 have. 6 MS. O'DELL: Why don't we take a short 7 break. 8 THE VIDEOGRAPHER: The time is 11:45 a.m. 9 We are now off the record. 10 (A break was taken from 11:45 a.m. to 11 12:15 p.m.) 12 THE VIDEOGRAPHER: The time is 12:15 p.m. 13 We are now back on the record. 14 EXAMINATION BY COUNSEL FOR THE PLAINTIFFS 15 BY MS. O'DELL: 16 Q Dr. Smith-Bindman, I have just a few 17 questions for you. First, during all of your work 18 in this case, was it your understanding that you 19 were serving as an expert consultant? 20 A Yes. 21 Q And you know, throughout the early 22 meetings in June, I believe, of 2017, where you met 23 with Plaintiffs' counsel, did Plaintiffs' counsel 24 provide information regarding their theories of the 25 talcum powder litigation?</p>	<p style="text-align: right;">Page 356</p> <p>1 MR. ZELLERS: Objection, form. 2 Q (BY MS. O'DELL) Let me strike that and 3 start again. Did your meta-analysis replicate what 4 had been published in the literature? 5 A The -- 6 MR. ZELLERS: Form. 7 A -- the results of my meta-analysis and the 8 previous ones are nearly identical. So yes, it was 9 a very close replication. 10 Q (BY MS. O'DELL) And you have mentioned 11 your intent to publish your -- your meta-analysis, 12 your systematic review. And I believe you testified 13 that in the published version, you would add 14 additional detail. 15 What did you mean by that? 16 A So the analysis that I have done is 17 complete. But the presentation of the results in a 18 paper would require more beautiful graphics, would 19 require explaining our inclusion and exclusion 20 criteria more fully than I did in this published 21 report. Things like that. 22 And that actually is a substantial part of 23 the writing of a scientific paper, sort of 24 explaining every step of what you did, and so I 25 would have to do more of that to publish this study.</p>
<p style="text-align: right;">Page 355</p> <p>1 A Yes. 2 Q And have you been paid by Plaintiffs' 3 counsel for all the work that you have billed in 4 this case? 5 A Yes, I have. 6 Q Okay. You have been asked a number of 7 questions about the meta-analysis, the systematic 8 review that you performed on the regular use of -- 9 of talcum powder. 10 Would you have reached your opinions in 11 this case without having performed that analysis? 12 A My systematic review ended up with the 13 same estimates as essentially all of the other 14 well-done systematic reviews. 15 And it was very helpful for me to confirm 16 the results. But yes, it's the same as the other 17 studies, and so my -- my conclusion about the 18 causality of talcum powder products and ovarian 19 cancer would be exactly the same, even without mine. 20 It just made me a little more comfortable 21 that I was certain about the -- the results 22 presented by other people. 23 Q And in a sense, the analysis that you did 24 replicated the work that had been published in the 25 -- in the literature?</p>	<p style="text-align: right;">Page 357</p> <p>1 Q Is there sufficient detail in the -- in 2 your report regarding your methodology, as well as 3 in the documentation provided in the spreadsheets 4 to -- for someone to replicate the work that you 5 have done? 6 MR. ZELLERS: Objection, form. 7 A I believe that if someone used the 8 software that we said and had the inclusion criteria 9 that we led out -- set out, that they would get the 10 -- the same results as we got. 11 And I think the fact that our review 12 provides the same results as other systematic 13 reviews sort of, you know, also supports that. But 14 yes, I think someone could easily replicate our -- 15 our analysis. 16 Q (BY MS. O'DELL) Okay. You were asked a 17 number of -- before I do that, let me ask you: Can 18 there be multiple causes of ovarian cancer? 19 A Absolutely. I -- I describe in the 20 report, a whole number of different risk factors for 21 ovarian cancer. 22 Q And in a -- in a patient -- hypothetically 23 in a patient who has a BRCA1 mutation, possibly has 24 other risk factors for ovarian cancer, and also uses 25 talcum powder products, under those circumstances,</p>

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<p style="text-align: right;">Page 358</p> <p>1 would talcum powder products be a contributing cause 2 of her cancer? 3 MR. ZELLERS: Objection, form. 4 A I think patients can have multiple risk 5 factors and causes of -- of cancer. Some causes, 6 you would imagine, would be quite synergistic. 7 So having both together would be worse 8 than twice having either of those alone. So it 9 would be worse than having -- it -- it would be more 10 than double the initial, because they would be 11 basically enhancing. 12 So if -- if some risk factors caused lots 13 of oxidative stress and another enhanced that 14 oxidative stress and prevented repair or cell 15 apoptosis, you would get even more impact. 16 So yes, I would say multiple risk factors 17 for most diseases occur concurrently, and sometimes 18 they enhance or are synergistic. 19 Q (BY MS. O'DELL) Can asbestos be inhaled 20 and cause ovarian cancer? 21 MR. ZELLERS: Objection, form; foundation. 22 A Absolutely. The -- the IARC 2012 report 23 was primarily on the basis of inhalation of 24 asbestos. 25 Q (BY MS. O'DELL) Can fibrous talc be</p>	<p style="text-align: right;">Page 360</p> <p>1 not disclosed in Dr. Smith-Bindman's expert report. 2 A Can I read? Just on page 14, The results 3 were consistent, significant, and documented a 4 strong and compelling causal association between 5 exposure to asbestos and ovarian cancer largely 6 result in the association from cohort studies of 7 women with substantial occupational exposures. 8 That -- that was the -- 9 Q (BY MS. O'DELL) Okay. Let me -- let me 10 ask you to -- to turn, Dr. Smith-Bindman, to the 11 Langseth paper that was marked as Exhibit 30 by 12 counsel for J&J. 13 And specifically to turn to page 2 of the 14 paper to Figure 1. 15 A Yes. 16 Q You were asked a number of questions about 17 whether the studies that had confidence intervals 18 that cross one were essentially by chance. In other 19 words, they -- they did not speak to a potential 20 increased risk in ovarian cancer as a result of 21 talcum powder use. 22 Are the -- what's your analysis of those 23 studies and whether, as counsel put it, it was 24 equivalent to a coin toss? 25 A So if there was no relationship between</p>
<p style="text-align: right;">Page 359</p> <p>1 inhaled and cause ovarian cancer? 2 A I -- 3 MR. ZELLERS: Objection, form; foundation. 4 A -- yes. 5 Q (BY MS. O'DELL) And what's your basis for 6 that statement? 7 MR. ZELLERS: Same objections. None of 8 this was in her report. None of this has been in 9 her opinions. 10 These are all new opinions. So inhalation 11 has not been any part of her testimony or her 12 opinion. 13 MS. O'DELL: Inhalation is mentioned in 14 her report. 15 A I -- I -- you know, the -- the chapter on 16 asbestos and occupational exposure and IARC report 17 is -- is about inhalation. 18 I'm not sure if I -- I was explicit about 19 the route, but that is where the data come from for 20 asbestos, as well as fibrous talc. 21 And those articles talk about the fact 22 that there might be other exposures in addition, but 23 they're primarily inhalation studies. 24 MR. ZELLERS: Again, object to what the 25 defense views as a completely new opinion that was</p>	<p style="text-align: right;">Page 361</p> <p>1 ovarian cancer and exposure to talcum powder 2 products, you would expect the forest plot in 3 Figure 1 to have half of the point estimates be 4 above one, saying there's a risk; and half of the 5 point estimates being below one, saying there isn't 6 a risk. 7 In fact, every one of the studies on this 8 table is at or above one. It's to the right. So to 9 get that by chance is highly, highly, highly 10 unlikely. 11 The best estimate is -- the point estimate 12 in all of those are very different than one. 13 And so to call that by chance doesn't make 14 sense. The fact that for an individual study, the 15 confidence interval overlap one doesn't mean it's by 16 chance. 17 So again, by chance would mean half the 18 studies have a positive association, half have a 19 protective. 20 And in fact, every one of the studies has 21 a value that's either substantially greater than one 22 or just a little greater than one. 23 Q Okay. You were asked questions about 24 starting -- in reference to the Langseth paper you 25 were asked questions about the -- the pooled odds</p>

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<p>1 ratio for hospital-based studies and the focus on 2 that finding being that it was not a statistically 3 significant increased risk. 4 Did the Berge paper also look at a pooled 5 analysis of the hospital-based studies? 6 A She did. If you look at Table 2, Table 2 7 shows the results of the case-control studies that 8 were hospital based versus community based. 9 And those individual group of 10 hospital-based studies are statistically 11 significant. 12 But I would point out that in this case 13 the -- they report the relative risk of a hospital 14 based versus community based. They're relatively 15 similar. They're both significant, and they're 16 relatively similar, which is what I concluded from 17 Langseth. They're very similar. 18 Q Okay. You were asked about studies 19 relating to migration. And the specific -- the 20 specific question, as I wrote it down was: Is there 21 a study that demonstrates talc on the -- applied to 22 the perineum, traveling to the -- or migrating to 23 the ovary, and you said, No. 24 What evidence are you relying on to 25 support your opinion that talcum powder can migrate</p>	<p>1 There have been studies of sperm, both 2 living and dead, going in both directions. So it's 3 not just the mobile sperm, but the dead sperm. 4 Carbon particles -- you know, a tiny 5 study -- but have been shown to move -- radioactive 6 material has been seen to move. Material on gloves 7 has been seen. 8 So it's a wide-open system. The idea that 9 we think of that as being a barrier system is just 10 false. 11 Now, I don't know of an individual study 12 that has put talc on the perineum. I think that's, 13 unfortunately, not an ethical study to do. And I 14 don't know of such a study or why you would do such 15 a study. 16 But to think that there's any barrier 17 between the perineum and the vagina makes no sense 18 whatsoever. 19 Q Let me transition to talk about 20 inflammation for a moment, and specifically 21 inflammation as a cause of ovarian cancer first. 22 What evidence are you relying on to 23 support your opinion that inflammation -- chronic 24 inflammation causes ovarian cancer? 25 A Okay. So there's an enormous amount of</p>
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<p>1 when applied -- applied to the genital area to the 2 ovary? 3 A So I was asked a very narrow question, is 4 there a study that talks about transport from the 5 perineum. 6 But in fact, there is extensive evidence 7 that particles from the perineum could get to the 8 ovary and do get to the ovary. 9 And part of that is the perineum is 10 basically equivalent to the vagina. It is one open 11 system to the ovary. 12 And so my evidence for that is 13 several-fold. First, I'm a clinical radiologist, 14 and I do a lot of procedures in women where I am 15 putting catheters in the vagina and injecting fluid 16 that goes to the uterus, to the tubes. I watch the 17 fluid spill. It's a wide-open system. 18 Occasionally patients have complications 19 that don't let me do that, and I might inject fluid 20 literally on the perineum to get a backlash to the 21 ovaries. And it's a wide-open connected system. 22 All of our textbooks talk about it being a 23 bi-directional system. You know, infection goes 24 both directions. Retrograde menstruation and 25 menstruation go both directions.</p>	<p>1 literature that understands what we see when there's 2 inflammation, what kind of changes you see on a 3 cellular level. 4 So you see increase in pro oxidation, a 5 reduction in antioxidation. You see increase in 6 cell turnover, reduction in cell death, expression 7 of inflammatory agents, cellular changes at the DNA 8 level that leads to greater expression. 9 We -- we understand those pathways. And 10 those pathways occur both with talc exposure and in 11 the setting of things that cause ovarian cancer. 12 So I -- in my reference list, I reference 13 a whole bunch of references -- Saed references, 14 Shawn (phonetic) references, Ness references. 15 There's really enormous numbers of references. 16 I -- in my documents I have Shukla 17 references, Buz'Zard references, Hamilton references 18 that talk away sort of these inflammatory pathways 19 and biologic mechanisms that lead to changes that go 20 along with inflammation. 21 Q I know you have reviewed Dr. Saed's 22 research in regard to whether talcum powder causes 23 inflammation in vitro. 24 First, let me ask you this: Does 25 Dr. Saed's work support the conclusion that</p>

31 (Pages 362 to 365)

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<p style="text-align: right;">Page 366</p> <p>1 Johnson's baby powder causes inflammation?</p> <p>2 MR. ZELLERS: Objection, form.</p> <p>3 A So Saed specifically looked at Johnson</p> <p>4 baby powder, so his results specifically pertained</p> <p>5 to Johnson baby powder.</p> <p>6 He looked at several different measures</p> <p>7 that -- I have just mentioned inflammation. So he</p> <p>8 looked specifically at oxidative stress, the up</p> <p>9 regulation or down regulation of --</p> <p>10 THE COURT REPORTER: The?</p> <p>11 A -- up regulation or pro oxidants, down</p> <p>12 regulation of antioxidants. He looked at cell</p> <p>13 proliferation. He looked at SNPS point mutations</p> <p>14 that are associated with this.</p> <p>15 THE COURT REPORTER: Snips?</p> <p>16 A S N P S, SNPS.</p> <p>17 THE COURT REPORTER: Because you're facing</p> <p>18 that way, and the mic is here. Thanks.</p> <p>19 A And showed substantial changes to talcum</p> <p>20 powder to all of these. I -- I was really quite</p> <p>21 impressed with the consistency in these markers of</p> <p>22 inflammation.</p> <p>23 Some of them overlap clinical markers we</p> <p>24 use. Like CA125 went up very strongly just like it</p> <p>25 goes up for ovarian cancer.</p>	<p style="text-align: right;">Page 368</p> <p>1 do that. That's beyond me. But that's what this</p> <p>2 whole model is, to try to help you understand what</p> <p>3 the effect mechanistically is from these changes.</p> <p>4 Q (BY MS. O'DELL) And is the use of that</p> <p>5 model in scientific research generally accepted?</p> <p>6 A Highly.</p> <p>7 MR. ZELLERS: Objection, form.</p> <p>8 A My understanding is that is the basis for</p> <p>9 much of the research that comes -- that happens at</p> <p>10 my research institution.</p> <p>11 Q (BY MS. O'DELL) Just to make sure that the</p> <p>12 record is clear, Dr. Smith-Bindman, in -- I asked</p> <p>13 the question: Is the use of that model in</p> <p>14 scientific research generally accepted? I'm not</p> <p>15 sure your answer came through. What's your answer?</p> <p>16 MR. ZELLERS: For your -- just objection,</p> <p>17 form. Go ahead.</p> <p>18 A Yes. I -- I said that that's a very</p> <p>19 common model at UCSF.</p> <p>20 Q Okay.</p> <p>21 MS. O'DELL: I have nothing further.</p> <p>22 Thank you.</p> <p>23 MR. ZELLERS: Let's take a break for a</p> <p>24 couple of minutes.</p> <p>25 THE VIDEOGRAPHER: The time is 12:34 p.m.</p>
<p style="text-align: right;">Page 367</p> <p>1 So he very clearly showed this. And the</p> <p>2 results he showed were not different than those that</p> <p>3 Shukla showed, that Buz'Zard showed, that -- the</p> <p>4 expression in genes.</p> <p>5 He -- he just had it in a very compelling</p> <p>6 experiment where he showed dose response, where he</p> <p>7 showed the control didn't have the changes, but that</p> <p>8 the talc powder products did have the changes.</p> <p>9 And so he identified, in this cellular</p> <p>10 cell line model, all of the changes that you would</p> <p>11 expect from inflammation. So I think the results</p> <p>12 were very compelling.</p> <p>13 I -- I was asked if kind of that</p> <p>14 experiment has any relevance in humans. And I would</p> <p>15 say it would be nice to do that experiment in</p> <p>16 humans.</p> <p>17 But you can't do that experiment in</p> <p>18 humans. And that's what --</p> <p>19 THE COURT REPORTER: Wait.</p> <p>20 A -- you can't do such an experiment in</p> <p>21 humans. So -- so that is what sort of cellular</p> <p>22 studies are -- are meant to approximate.</p> <p>23 There's no direct translation, so how much</p> <p>24 you put in the cell versus how much you put in the</p> <p>25 patient, I -- you know, I don't know how you would</p>	<p style="text-align: right;">Page 369</p> <p>1 We are now off the record.</p> <p>2 (A break was taken from 12:34 p.m. to</p> <p>3 12:41 p.m.)</p> <p>4 THE VIDEOGRAPHER: The time is 12:41 p.m.</p> <p>5 We are now back on the record.</p> <p>6 EXAMINATION BY COUNSEL FOR THE DEFENDANTS</p> <p>7 BY MS. BOCKUS:</p> <p>8 Q Doctor, you made a comment about the fact</p> <p>9 that there can be a synergistic effect between</p> <p>10 different risk factors; is that correct?</p> <p>11 A Yes.</p> <p>12 Q That is something that can be studied,</p> <p>13 correct?</p> <p>14 A Yes.</p> <p>15 Q There are studies that can be designed to</p> <p>16 determine whether there's a synergistic effect</p> <p>17 between, say, BRCA mutation carriers and women who</p> <p>18 have regularly used talcum powder --</p> <p>19 A Yes.</p> <p>20 Q -- correct?</p> <p>21 That study has not been done, correct?</p> <p>22 A Not that I know of.</p> <p>23 Q In fact, are you familiar or aware of any</p> <p>24 studies that have looked for a synergistic effect</p> <p>25 between regular talc use and any other risk factors</p>

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<p style="text-align: right;">Page 370</p> <p>1 for ovarian cancer?</p> <p>2 MS. O'DELL: Object to the form.</p> <p>3 A I would have to look through my papers</p> <p>4 with that question in mind. I know some of the</p> <p>5 papers have looked at BRCA, but I can't remember if</p> <p>6 they sort of stratified the results by -- with or</p> <p>7 without BRCA, so I -- I'm not sure of the answer to</p> <p>8 that.</p> <p>9 I was more speaking about, from work that</p> <p>10 I do, the idea of synergy between risk factors. And</p> <p>11 one of those is BRCA and radiation exposure. So</p> <p>12 I -- I -- I meant generally it can be the case. I</p> <p>13 didn't mean to suggest we know what it is for this.</p> <p>14 Q (BY MS. BOCKUS) Okay. Then you spoke</p> <p>15 about the female reproductive system being a</p> <p>16 wide-open system.</p> <p>17 What procedure are you doing when you are</p> <p>18 putting fluid on a women's perineum to see if it</p> <p>19 goes to the ovaries?</p> <p>20 A I apologize. So the primary procedures</p> <p>21 would be a hysterosonogram, which we're putting</p> <p>22 water into the uterus and the tubes mostly to look</p> <p>23 for patency.</p> <p>24 But it turns out we end up needing to do</p> <p>25 procedures in postop patients, not infrequently,</p>	<p style="text-align: right;">Page 372</p> <p>1 Q Do you know if anything about what you</p> <p>2 just described has any correlation to the way in</p> <p>3 which women use talcum powder in their perineal</p> <p>4 region?</p> <p>5 MS. O'DELL: Object to the form.</p> <p>6 A I -- I don't know what -- how women use</p> <p>7 talcum powder on their perineum.</p> <p>8 Q (BY MS. BOCKUS) Do you know what</p> <p>9 percentage of sperm that are placed in a women's</p> <p>10 vagina make it to the ovaries?</p> <p>11 A Only from child cartoons that make it seem</p> <p>12 like it's a competitive race. But percentagewise, I</p> <p>13 don't know.</p> <p>14 Q Do you have any reason to believe that</p> <p>15 talc makes it from the vagina to the ovaries in</p> <p>16 greater percentage than sperm?</p> <p>17 A I -- I -- I would guess that that's not</p> <p>18 the case.</p> <p>19 MS. BOCKUS: That's all I have.</p> <p>20 MR. ZELLERS: I have just a couple.</p> <p>21 EXAMINATION BY COUNSEL FOR THE DEFENDANTS</p> <p>22 BY MR. ZELLERS:</p> <p>23 Q Dr. Smith-Bindman, did you discuss with</p> <p>24 Plaintiffs' counsel, calling Dr. Hall on our break</p> <p>25 between yesterday's first session and today's</p>
<p style="text-align: right;">Page 371</p> <p>1 where we might be looking for connections between</p> <p>2 different structures, preop or postop.</p> <p>3 In the ballpark of 10 percent of women to</p> <p>4 20 percent have cervical stenosis, and you can't</p> <p>5 catheterize.</p> <p>6 Or there might be some reason we don't</p> <p>7 want to catheterize or put the tubes in the vagina.</p> <p>8 We might put the tube directly on the perineum and</p> <p>9 see if we can create kind of a -- a way to keep,</p> <p>10 let's say, a balloon in place and then inject in a</p> <p>11 retrograde fashion.</p> <p>12 So it feels like it comes out probably</p> <p>13 every couple of months. But we're actually pretty</p> <p>14 far from the cervix. And we're injecting usually</p> <p>15 water or sometimes contrast and then looking mostly</p> <p>16 with ultrasound, but sometimes with fluoroscopy.</p> <p>17 Q And when you say "inject," that means with</p> <p>18 some degree of pressure, you're putting the water or</p> <p>19 other fluid into the vagina?</p> <p>20 A There is some degree of pressure, yes.</p> <p>21 Q And when you do that, is the patient's</p> <p>22 head lower than her hips?</p> <p>23 A Not -- not usually, no.</p> <p>24 Q Is she on her back?</p> <p>25 A Yes.</p>	<p style="text-align: right;">Page 373</p> <p>1 session?</p> <p>2 MS. O'DELL: I'm going to ask -- ask</p> <p>3 you -- instruct you not to answer questions</p> <p>4 regarding discussions with counsel.</p> <p>5 MR. ZELLERS: The defense agreed to split</p> <p>6 this deposition of Dr. Smith-Bindman over two days</p> <p>7 on the expressed condition that the extended break</p> <p>8 not be used for preparation.</p> <p>9 The witness and Plaintiffs' counsel</p> <p>10 violated that understanding. Further, it's entirely</p> <p>11 inappropriate for an expert witness to consult with</p> <p>12 a consulting expert during a break.</p> <p>13 We move to strike all of</p> <p>14 Dr. Smith-Bindman's testimony and will take the</p> <p>15 issue to court.</p> <p>16 MS. O'DELL: The record is clear that</p> <p>17 counsel did not speak with Dr. Smith-Bindman last</p> <p>18 night. There was no preparation done between the</p> <p>19 conclusion of the deposition yesterday and the</p> <p>20 beginning of the deposition this morning. I think</p> <p>21 the record has been clear on that.</p> <p>22 That was -- we agreed to do that. We had</p> <p>23 not -- we were not compelled to do that. Because as</p> <p>24 counsel is aware, the deposition protocol allows</p> <p>25 both parties, when they're putting up their</p>

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1 respective witnesses, to confer with the witness.
2 And we did confer with Dr. Smith-Bindman
3 prior to the deposition this morning for about
4 10 minutes, and that's perfectly within our rights,
5 and so we would oppose any such motion.
6 MR. ZELLERS: Done? We are concluded.
7 THE VIDEOGRAPHER: The time is 12:48 p.m.
8 We are now off the record.
9 (TIME NOTED: 12:48 p.m..)

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1 I, MARY J. GOFF, CSR No. 13427, Certified
2 Shorthand Reporter of the State of California,
3 certify;
4 That the foregoing proceedings were taken
5 before me at the time and place herein set forth, at
6 which time the witness declared under penalty of
7 perjury; that the testimony of the witness and all
8 objections made at the time of the examination were
9 recorded stenographically by me and were thereafter
10 transcribed under my direction and supervision; that
11 the foregoing is a full, true, and correct
12 transcript of my shorthand notes so taken and of the
13 testimony so given;
14 That before completion of the deposition,
15 review of the transcript () was (XX) was not
16 requested: () that the witness has failed or
17 refused to approve the transcript.
18 I further certify that I am not financially
19 interested in the action, and I am not a relative or
20 employee of any attorney of the parties, nor of any
21 of the parties.
22 I declare under penalty of perjury under the
23 laws of California that the foregoing is true and
24 correct, dated this day of , 2019.

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1
2
3
4 I, REBECCA SMITH-BINDMAN, M.D., do hereby
5 declare under penalty of perjury that I have read
6 the foregoing transcript; that I have made any
7 corrections as appear noted, in ink, initiated by
8 me, or attached hereto; that my testimony as
9 contained herein, as corrected, is true and correct.
0 EXECUTED this _____ day of _____,
1 20____, at _____, _____
(City) (State)

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VOLUME II

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1 ERRATA SHEET
2 Golkow Litigation Services
3 1650 Market Street, One Liberty Plaza, 51st Floor
4 Philadelphia, Pennsylvania 19103
5 877-370-3377
6 CASE: Talcum Powder Litigation
7 PAGE LINE FROM TO
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19 _____
20 _____
21 REBECCA SMITH-BINDMAN, M.D., VOLUME II
22 Subscribed and sworn to before me
23 this ____ day of _____, 2019.
24 _____
25 Notary Public

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